SONY

HD CAMERA ADAPTOR

HDCA-50

HDVS

MAINTENANCE MANUAL

Volume 1 1st Edition

Serial No. 10001 and Higher

SAFETY RELATED COMPONENT WARNING

Components identified by shading and ⚠ marked on the schematic diagrams and parts list are critical to safe operation. Replace these components with SONY parts whose part numbers appear as shown in this manual or in supplements published by SONY.

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目 次

TABLE OF CONTENTS

Volume 1

1. 設置

1-1. 開梱と再梱包…… 1-1 (J)
1-2. 標準付属品…… 1-2 (J)
1-3. 適合コネクタ／ケーブル…… 1-3 (J)
1-3-1. コネクタの入出力信号…… 1-3 (J)
1-3-2. 接続コネクタ …… 1-6 (J)
1-3-3. HDCZコネクタの外し方…… 1-7 (J)
1-3-4. ケーブルの結線…… 1-8 (J)
1-4. 電源 …… 1-9 (J)
1-5. 設置 …… 1-9 (J)
1-5-1. 設置環境…… 1-9 (J)
1-5-2. 外形寸法…… 1-10 (J)
1-5-3. カメラとの接続方法…… 1-11 (J)
1-5-4. インカムジャックへの交換方法…… 1-12 (J)
1-5-5. MIC／LINEコネクタの交換方法 …. 1-13 (J)
1-6. 基板内スイッチの設定…… 1-14 (J)

2. 主要部品の交換方法

2-1. 外装の外し方…… 2-1 (J)
2-2. VTRコネクタの交換…… 2-2 (J)
2-3. コネクタボックスの交換…… 2-2 (J)
2-4. シールドネット (U) ／ (L) の交換 …. 2-3 (J)
2-5. ファンの交換…… 2-4 (J)

3. サービスインフォメーション

3-1. 基板配置図…… 3-1 (J)
3-2. サービス上の注意事項…… 3-2 (J)
3-2-1. PROM, PLD…… 3-2 (J)
3-2-2. 補修用部品の注意事項…… 3-2 (J)
3-3. ドッキング治具の使用方法…… 3-3 (J)
3-3-1. ウェッジ (小) 交換時の使用方法…. 3-3 (J)
3-3-2. CNプレート交換時の使用方法…… 3-3 (J)
3-4. 治工具 …… 3-4 (J)

4. 調整要項

4-1. 準備 …… 4-1 (J)
4-1-1. 使用機器…… 4-1 (J)
4-1-2. 接続…… 4-2 (J)
4-2. 調整 …… 4-3 (J)
4-2-1. 初期設定…… 4-3 (J)
4-2-2. 注意事項…… 4-3 (J)
4-2-3. 電源電圧調整 …… 4-4 (J)
4-2-4. VCO周波数調整…… 4-5 (J)
4-2-5. H PHASE REF調整…… 4-6 (J)
4-2-6. G／B／R 入力レベル調整 (PR-155基板)…… 4-7 (J)
4-2-7. ペデスタル調整…… 4-8 (J)
4-2-8. G／B／R OUTレベル調整 (PR-155基板)…… 4-9 (J)
4-2-9. ニースロープ調整…… 4-10 (J)
4-2-10. G／B／R 入力レベル調整 (PR-168基板)…… 4-11 (J)
4-2-11. G／B／Rオフセット調整…… 4-12 (J)
4-2-12. G／B／R OUTレベル調整 (PR-168基板)…… 4-13 (J)
4-2-13. ガンマバランス調整…… 4-14 (J)
4-2-14. ガンマレベル調整…… 4-15 (J)
4-2-15. G／B／Rクリップレベル調整…… 4-16 (J)
4-2-16. H DTLバランス調整…… 4-17 (J)
4-2-17. V DTLバランス調整…… 4-18 (J)
4-2-18. レベルディペンデント調整 …… 4-19 (J)
4-2-19. H／V RATIO調整…… 4-20 (J)
4-2-20. クリスプニング調整…… 4-21 (J)
4-2-21. DTLクリップレベル調整 …… 4-22 (J)
4-2-22. DTLレベル調整…… 4-23 (J)
4-2-23. VF DTL OUTレベル調整 …… 4-24 (J)
4-2-24. G／B／R OUTレベル調整 (IE-32基板)…… 4-25 (J)
4-2-25. ブラックオフセット調整 …… 4-26 (J)
4-2-26. G／B／R ビデオレベル調整…… 4-27 (J)
4-2-27. G／B／R BARSレベル調整…… 4-28 (J)
4-2-28. Yレベル調整 …… 4-29 (J)
4-2-29. PRバランス／レベル調整 …… 4-30 (J)
4-2-30. P_Bバランス／レベル調整…… 4-31 (J)
4-2-31. SYNCレベル調整…… 4-32 (J)
4-2-32. CHARACTERレベル調整 …… 4-33 (J)
4-2-33. ホワイトクリップ調整…… 4-34 (J)
4-2-34. オートニーピーク調整…… 4-35 (J)
4-2-35. インカム調整 …… 4-36 (J)

1. INSTALLATION

1-1. Unpacking and Repacking ..... 1-1 (E)
1-2. Supplied Accessories ..... 1-2 (E)
1-3. Connector/Cable ..... 1-3 (E)
1-3-1. Connector Input/Output Signals ..... 1-3 (E)
1-3-2. Connector ..... 1-6 (E)
1-3-3. Removal of the HDCZ Connectors ..... 1-7 (E)
1-3-4. Cable Wiring ..... 1-8 (E)
1-4. Power Supply ..... 1-9 (E)
1-5. Installation ..... 1-9 (E)
1-5-1. Installation Environment ..... 1-9 (E)
1-5-2. Dimensions ..... 1-10 (E)
1-5-3. Connection to Camera ..... 1-11 (E)
1-5-4. Replacement with INCOM JACK ..... 1-12 (E)
1-5-5. Replacement of MIC/LINE Connector ..... 1-13 (E)
1-6. Switch Settings on the Board ..... 1-14 (E)

2. REPLACEMENT OF MAIN PARTS

2-1. Cabinet Removal ..... 2-1 (E)
2-2. Replacement of VTR Connector ..... 2-2 (E)
2-3. Replacement of Connector Box ..... 2-2 (E)
2-4. Replacement of Shield Nets(U)/(L) ..... 2-3 (E)
2-5. Replacement of Fan ..... 2-4 (E)

3. SERVICE INFORMATION

3-1. Board Layout ..... 3-1 (E)
3-2. Note on Maintenance Services ..... 3-2 (E)
3-2-1. PROM, PLD ..... 3-2 (E)
3-2-2. Note on Replacement Parts ..... 3-2 (E)
3-3. Use of Positioning Tool ..... 3-3 (E)
3-3-1. Use of the Tool for Wedge (Small) Replacement ..... 3-3 (E)
3-3-2. Use of the Tool for CN Plate Replacement ..... 3-3 (E)
3-4. Tools and Fixtures ..... 3-4 (E)

4. ALIGNMENT

4-1. Preparation ..... 4-1 (E)
4-1-1. Equipment Required ..... 4-1 (E)
4-1-2. Connection ..... 4-2 (E)
4-2. Adjustment ..... 4-3 (E)
4-2-1. Initial Setting ..... 4-3 (E)
4-2-2. Note ..... 4-3 (E)
4-2-3. +5.5V/–5.5V Adjustment ..... 4-4 (E)
4-2-4. VCO Frequency Adjustment ..... 4-5 (E)
4-2-5. H PHASE Adjustment ..... 4-6 (E)
4-2-6. G/B/R Input Level Adjustment (PR-155 Board) ..... 4-7 (E)
4-2-7. Pedestal Adjustment ..... 4-8 (E)
4-2-8. G/B/R OUT Level Adjustment (PR-155 Board) ..... 4-9 (E)
4-2-9. Knee Slope Adjustment ..... 4-10 (E)
4-2-10. G/B/R Input Level Adjustment (PR-168 Board) ..... 4-11 (E)
4-2-11. G/B/R Offset Adjustment ..... 4-12 (E)
4-2-12. G/B/R OUT Level Adjustment (PR-168 Board) ..... 4-13 (E)
4-2-13. Gamma Balance Adjustment ..... 4-14 (E)
4-2-14. Gamma Level Adjustment ..... 4-15 (E)
4-2-15. G/B/R CLIP Level Adjustment ..... 4-16 (E)
4-2-16. H DTL Balance Adjustment ..... 4-17 (E)
4-2-17. V DTL Balance Adjustment ..... 4-18 (E)
4-2-18. Level Dependent Adjustment ..... 4-19 (E)
4-2-19. H/V RATIO Adjustment ..... 4-20 (E)
4-2-20. Crispening Adjustment ..... 4-21 (E)
4-2-21. DTL Clip Level Adjustment ..... 4-22 (E)
4-2-22. DTL Level Adjustment ..... 4-23 (E)
4-2-23. VF DTL OUT Level Adjustment ..... 4-24 (E)
4-2-24. G/B/R Out Level Adjustment (IE-32 Board) ..... 4-25 (E)
4-2-25. Black OFFSET Adjustment ..... 4-26 (E)
4-2-26. G/B/R Video Level Adjustment ..... 4-27 (E)
4-2-27. G/B/R BARS Level Adjustment ..... 4-28 (E)
4-2-28. Y Level Adjustment ..... 4-29 (E)
4-2-29. PR Balance/Level Adjustment ..... 4-30 (E)
4-2-30. PB Balance/Level Adjustment ..... 4-31 (E)
4-2-31. SYNC Level Adjustment ..... 4-32 (E)
4-2-32. CHARACTER Level Adjustment ..... 4-33 (E)
4-2-33. White Clip Adjustment ..... 4-34 (E)
4-2-34. Auto Knee Peak Adjustment ..... 4-35 (E)
4-2-35. INCOM Adjustment ..... 4-36 (E)

Volume 2

A. BLOCK DIAGRAMS

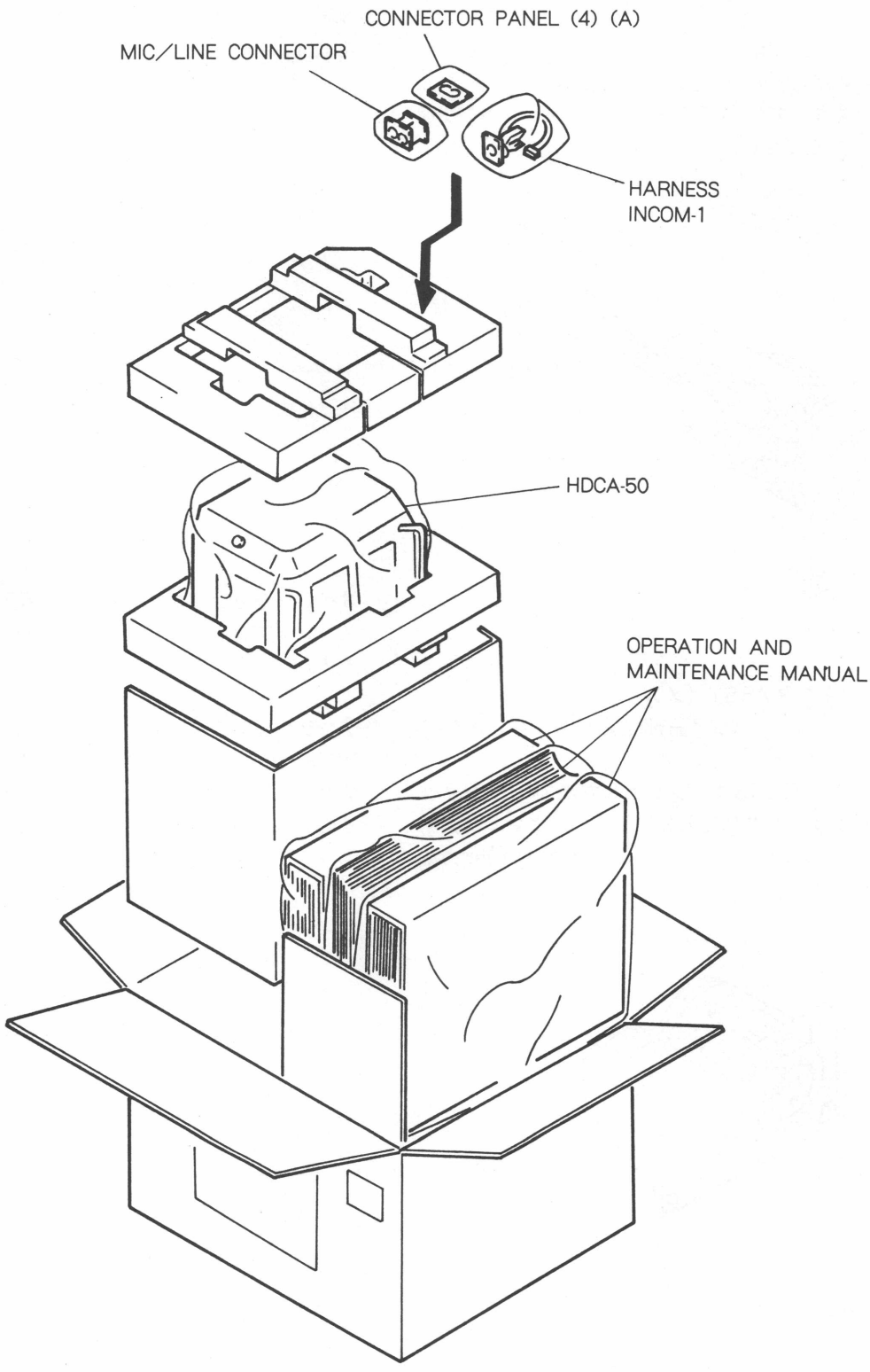
B. SEMICONDUCTOR PIN ASSIGNMENTS

C. SCHEMATIC DIAGRAMS AND BOARD ILLUSTRATIONS

D. SPARE PARTS

第1章
設　置

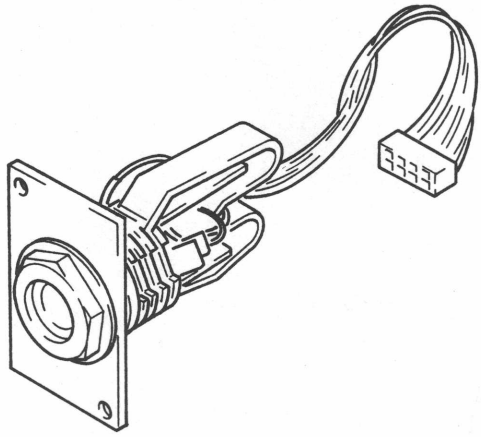
1-1. 開梱と再梱包



1-2. 標準付属品

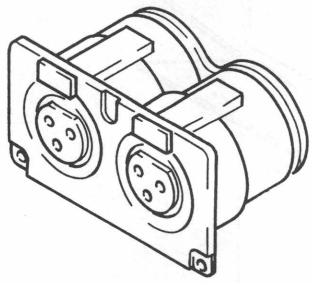
インカムジャックハーネス
（ソニー部品番号 1-950-217-12）

工場出荷時，インカム用にXLR型の5Pコネクタがついています。110号型のジャックを使用する場合に交換して下さい。交換手順につきましては，1-5-4. インカムジャックへの交換方法を参照してください。



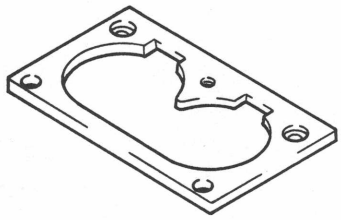
MIC／LINEコネクタ ASSY（メス）
（ソニー部品番号 A-8270-417-A）

工場出荷時，MIC／LINEコネクタとしてオスの3Pコネクタがついています。必要に応じて交換して下さい。交換手順につきましては，1-5-5. MIC／LINEコネクタの交換方法を参照してください。



コネクタパネル　（ソニー部品番号 3-176-318-01）

MIC／LINEコネクタ ASSY（メス）を取り付ける時に使用します。



オペレーションマニュアル（和・英）：各一冊
スタンドアローンオペレーションシステムの取扱い説明書です。

メンテナンスマニュアル VOL-1，VOL-2：各一冊
VOL-1はHDCA-50のサービス情報です。
VOL-2は回路図・ブロック図および補修用部品の情報が入っています。

1-3. 適合コネクタ／ケーブル

1-3-1. コネクタの入出力信号

主なコネクタの入出力信号は次の通りです。

EAR	ミニジャック型
MONITOR	BNC型75 Ω VS 1 V p-p
INCOM	大型110号型ジャック（標準付属品） 入力インピーダンス 5～10 kΩ 出力インピーダンス 300 Ω不平衡 入力レベル200 mV p-p（1 kHz） 出力レベル最大1.7 V p-p（1 kHz）

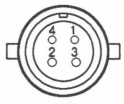
INCOM (5P, FEMALE)

(EXTERNAL VIEW)

Pin No.	SIGNAL	SPECIFICATION
1	INCOM MIC⊖	− 20 dB (CARBON MIC)
2	INCOM MIC⊕	− 60 dB (DYNAMIC MIC)
3	GND	
4	INCOM RECEIVE OUT	max. 0 dB
5		

(0 dB = 0.775 V)

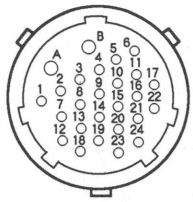
DC OUT (4P, FEMALE)



(EXTERNAL VIEW)

Pin No.	SIGNAL	SPECIFICATION
1	GND	GND for LAMP POWER
2		
3		
4	LAMP POWER OUT	12 V, 0.4 A (max.)

VTR (26P, MALE)

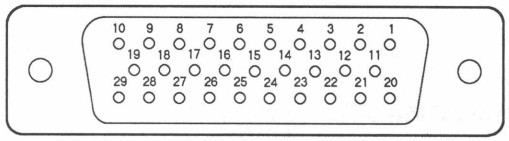


(EXTERNAL VIEW)

Pin No.	SIGNAL	SPECIFICATION
A	UNREG IN	DC + 10.6 V～+ 17 V
B	UNREG GND	
1	GENLOCK IN	Zi = 75 Ω 0.7 V p-p 0 V dc
2	GENLOCK GND	
3	G／Y (G)	Zo = 75 Ω 0.7 V p-p 0 V dc
4	G／Y OUT	
5	R／P_R OUT	Zo = 75 Ω 0.7 V p-p 0 V dc
6	R／P_R (G)	
7	B／P_B OUT	Zo = 75 Ω 0.7 V p-p 0 V dc
8	B／P_B (G)	
9	CH1 MIC OUT (X)	− 20 dB Zo = Low Impedance (lower than 600 Ω)
10	CH1 MIC OUT (Y)	
11	CH1／CH2 MIC GND	
12	UNREG (+) SENSE	
13	UNREG (−) SENSE	
14	INCOM LINE IN／OUT	0.5 V p-p
15	CH2 MIC OUT (X)	− 20 dB Zo = Low Impedance (lower than 600 Ω)
16	CH2 MIC OUT (Y)	
17		
18	RET VIDEO IN	Zi = 75 Ω 0.7 V p-p 0 V dc
19	RET VIDEO GND	
20	AUDIO IN	− 6 dB Zi = 750 Ω／1 kHz
21	RX COMMAND (X) (VTR→CHU)	RS-422
22	RX COMMAND (Y) (VTR→CHU)	
23	TX COMMAND (X) (CHU→VTR)	RS-422
24	TX COMMAND (Y) (CHU→VTR)	

(0 dB = 0.775 V)

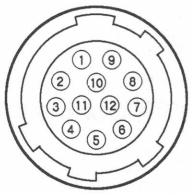
CAMERA (29P, FEMALE)



(EXTERNAL VIEW)

Pin No.	SIGNAL	SPECIFICATION
1	G VIDEO IN(X)	0.7 V p-p 0 V dc 75 Ω ± 1% floating
2	G VIDEO IN(G)	GND for G VIDEO
3	R VIDEO IN(X)	0.7 V p-p 0 V dc 75 Ω ± 1% floating
4	R VIDEO IN(G)	GND for R VIDEO
5	B VIDEO IN(X)	0.7 V p-p 0 V dc 75 Ω ± 1% floating
6	B VIDEO IN(G)	GND for B VIDEO
7	UNREG(+12 V) OUT(G)	GND for UNREG(+12 V)
8	UNREG(+12 V) OUT(G)	
9	UNREG(+12 V) OUT(X)	DC 10.5～17 V, 2 A
10	UNREG(+12 V) OUT(X)	
11		
12		
13	+12 V SENSE IN	UNREG +12 V SENSE
14	+12 V(G) SENSE IN	UNREG GND SENSE
15	CHU POWER SAVE $\overline{ON}$ IN	0V: POWER SAVE
16	AUX +5 V IN/OUT	
17	AUX -5 V IN/OUT	
18	INCOM(G) IN	GND for INCOM
19	INCOM LINE IN/OUT	0.5 V p-p
20	CHU COMMAND(X)	RS-422
21	CHU COMMAND(Y)	
22	CHU COMMAND(G)	
23	CHU HVD OUT(G)	GND for CHU HVD
24	CHU HVD OUT(X)	negative 0.3 V p-p, 75 Ω ± 1%
25	CHU S DATA OUT	I²C interface 5 V p-p
26	CHU S CLOCK OUT	I²C interface 5 V p-p
27	CHU SEPARATE ON IN	+5 V Pull up DC +5 V: SEPARATION DC 0 V: NO SEPARATION
28	CHU VF OUT(X)	0.7 V p-p 0 V dc 75 Ω ± 1% with sync
29	CHU VF OUT(G)	GND for CHU VF

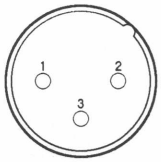
VF (12P, FEMALE)



(EXTERNAL VIEW)

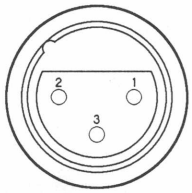
Pin No.	SIGNAL	SPECIFICATION
1	BATT IND OUT	DC +5 V: LIGHT UP RO=220 Ω
2	UNREG(+12 V) OUT	DC 10.5～17 V, 2 A
3	VF VIDEO OUT(G)	GND for VF VIDEO
4	VF VIDEO OUT(X)	VS 1 V p-p, 75 Ω termination DC ±200 mV
5	PEAKING ON/$\overline{OFF}$ IN	Camera DC 0 V : aperture OFF Camera DC +5 V or HIGH : aperture ON
6		
7	RED TALLY OUT	DC +5 V: LIGHT UP, Ro=220 Ω
8	NON-NORMAL OUT	DC +5 V: LIGHT UP, Ro=220 Ω
9		
10	UNREG(GND) OUT	GND for UNREG +12 V
11	VTR SAVE OUT	DC +5 V: LIGHT UP, Ro=220 Ω
12	GREEN TALLY OUT	DC +5 V: LIGHT UP, Ro=220 Ω

MIC／LINE CH1／CH2
(3P, MALE)



(EXTERNAL VIEW)

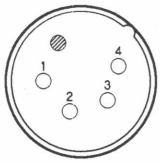
(3P, FEMALE) (標準付属品)



(EXTERNAL VIEW)

Pin No.	SIGNAL	SPECIFICATION
1	MIC／LINE IN (G)	Zi = 5 kΩ
2	MIC／LINE IN (X)	
3	MIC／LINE IN (Y)	

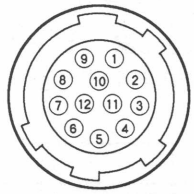
DC IN (4P, MALE)



(EXTERNAL VIEW)

Pin No.	SIGNAL	SPECIFICATION
1	GND	GND for DC (+)
2	(SPARE)	
3	(SPARE)	
4	DC (+) IN	DC + 10.6～+ 17 V

REMOTE (12P, FEMALE)



(EXTERNAL VIEW)

Pin No.	SIGNAL	SPECIFICATION
1	FM CHU COMMAND OUT	5 V p-p
2	UNREG	DC +10.5 V～17 V
3	POWER $\overline{\text{ON}}$	GND
4	SCK	I^2C interface 5 V p-p
5	INCOM GND	GND for INCOM
6	INCOM IN/OUT	0.5 V p-p
7	FM VTR COMMAND OUT	5 V p-p
8	REMOTE $\overline{\text{ACT}}$	GND
9	SDA	I^2C interface 5 V p-p
10	UNREG GND	GND for UNREG
11	TO CHU COMMAND IN	5 V p-p
12	TO VTR COMMAND IN	5 V p-p

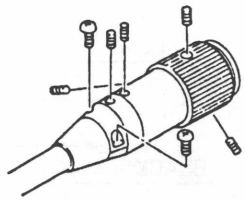
1-3-2. 接続コネクタ

設置時，サービス時等においてコネクタパネル部の各種コネクタにケーブルを接続する際には，その先端に次に記すコネクタまたは同等品を使用してください。

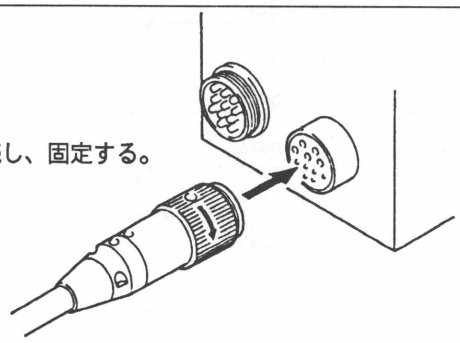
コネクタの機能名称	接続するケーブル側のコネクタの部品番号および名称
INCOM (5P, FEMALE)	9-910-999-31 PLUG 5P, MALE CANNON XLR-5-12C or equivalent
MONITOR (BNC)	1-508-898-00 PLUG, BNC or UGC (B-B) COAXIAL Cable assembly (optional) UGC-0.5 (0.5m／1.6feet) UGC-1 (1m／3.2feet) UGC-2 (2m／6.4feet) UGC-5 (5m／16.4feet) UGC-10 (10m／32.8feet) UGC-25 (25m／82feet)
VTR (26P, MALE)	1-564-184-31 HDCZ PLUG, 26P, FEMALE JAE SRCB06A21-26S-(13)-K513 or equivalent HDCZ cable assembly HDCZ-10 (10m／32.8 feet) HDCZ-25 (25m／82 feet)
VF (12P, FEMALE)	1-568-233-11 CONNECTOR, ROUND TYPE, 12P MALE 1-574-495-11 CABLE ASSY (Supplied with HKCF-750) 1-574-495-21 CABLE ASSY (Supplied with HDVF-30)
REMOTE (12P, FEMALE)	1-568-233-11 CONNECTOR, ROUND TYPE, 12P MALE 1-574-495-41 CABLE ASSY (Supplied with HDCR-350) 1-574-495-31 CABLE ASSY (Supplied with HDCR-50)
MIC／LINE CH1／CH2 (3P, MALE)	1-508-083-11 PLUG, 3P FEMALE or CANNON XLR-3-11C or equivalent
MIC／LINE CH1／CH2 (3P, FEMALE) (標準付属品)	1-508-084-11 PLUG, 3P MALE or CANNON XLR-3-12C or equivalent
DC IN (4P, MALE)	1-508-362-11 PLUG, 4P FEMALE or CANNON XLR-4-11C or equivalent

1-3-3. HDCZ コネクタの外し方

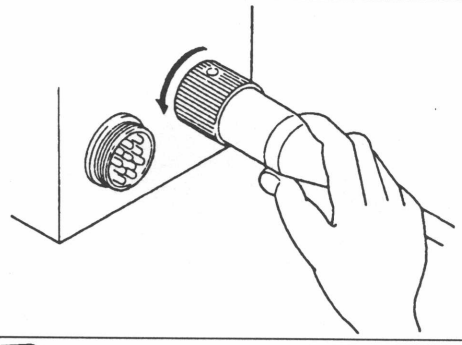
Step 1.
ビスを外す。



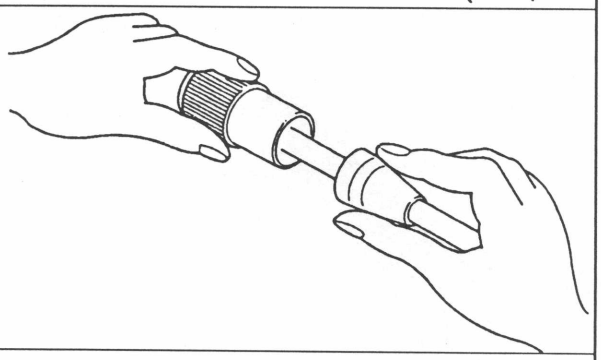
Step 2.
コネクタをカメラアダプターまたはシグナルディストリビューターに接続し、固定する。



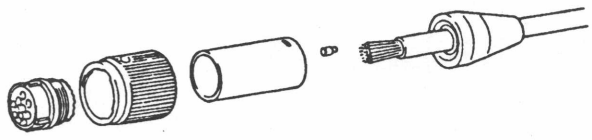
Step 3.
反時計方向に回し、コネクタをゆるめる。



Step 4.
あとは手で外れます。

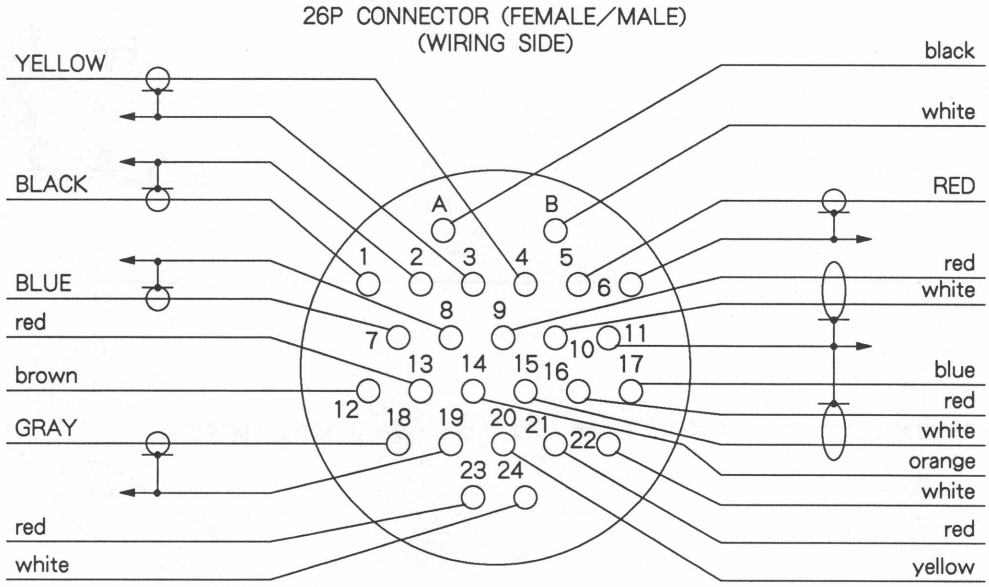


Step 5.
右図のように分解されます。



1-3-4. ケーブルの結線

HDCZケーブル（結線図）



1-4. 電源

電源電圧　DC17V
消費電力　14W

電源電圧は，HDCD-50にて発生し，HDCD-50よりHDCZカメラケーブルにて供給。
または，直接HDCA-50に外部電源を接続して供給する。

1-5. 設置

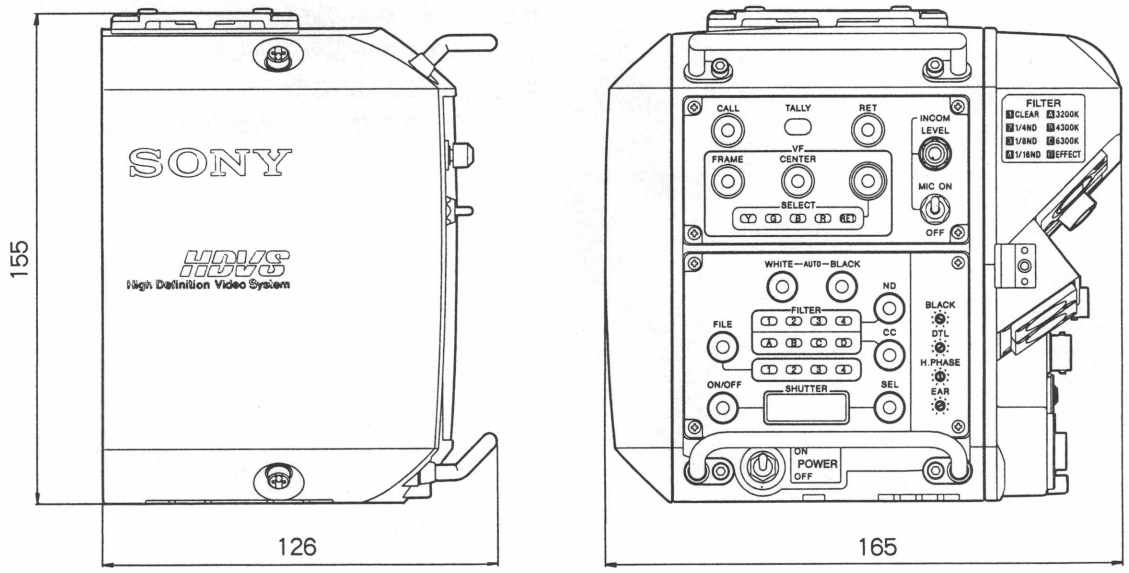
1-5-1. 設置環境

動作温度　0℃～40℃
保存温度　－20℃～＋60℃
湿度　　20％～80％

- できるだけ乾燥した，風通しの良い場所に置いて下さい。
- 次のような場所は避けて下さい。
  高温の部屋や熱源の近く
  ホコリの多い所や振動の激しい所
  強電界，強磁界のある所
  直射日光や強力なライト等が直接当たる所

1-5-2. 外形寸法

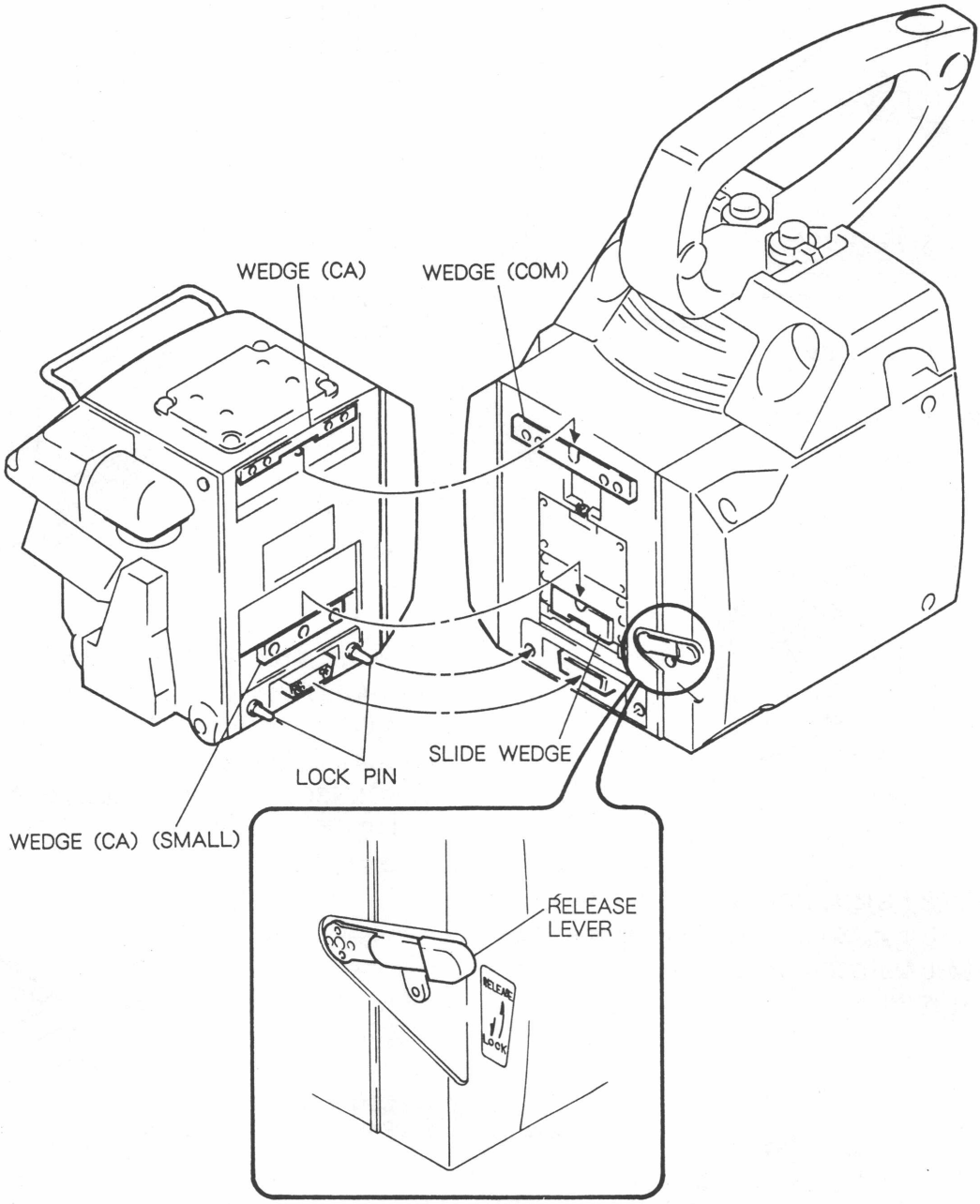
単位記号：mm



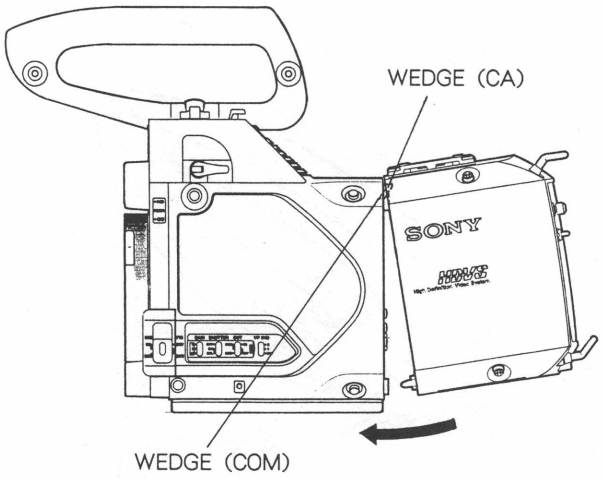
（単位：mm, 最大突起を含む。）

1-5-3. カメラとの接続方法

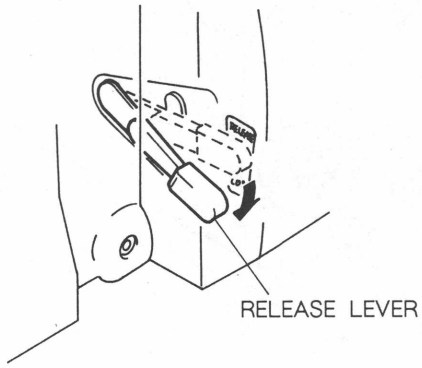
- 下記の手順にてHDC-500とHDCA-50を接続します。
  ① RELEASE LEVERがRELEASEの位置にあること
  を確認します。



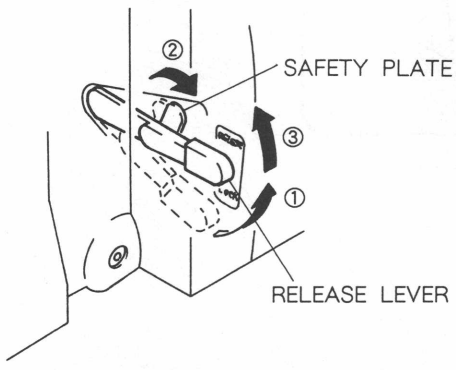
② WEDGE (COM) にWEDGE (CA) を引っかけ, 矢印の方向に取り付けます。カチッと音がしてプリロックの状態になります。



③ RELEASE LEVERを矢印の方向に動かし完全にロックします。



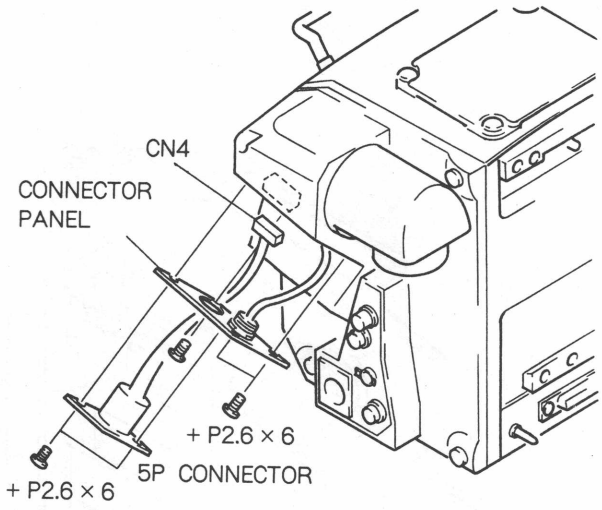
* ロックを解除するには, RELEASE LEVERを矢印①の方向に動かします。次にSAFETY PLATEを矢印②の方向に動かしながらRELEASE LEVERを矢印③の方向に動かし解除します。



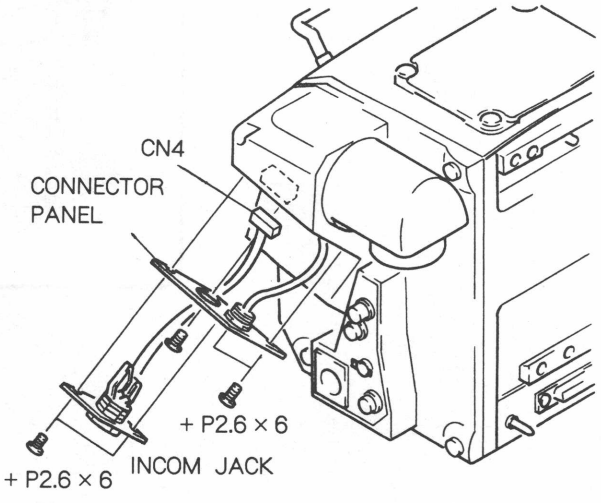
1-5-4. インカムジャックへの交換方法

工場出荷時はXLR型インカムパネルが付いています。付属の110号型インカムジャックを使用する場合, 交換方法を下記の手順で説明します。

1. XLR 5P コネクタを止めているねじ (+ P2.6 × 6) 2本を外します。
2. XLR 5P コネクタを引き出しCONNECTOR PANELを止めているねじ (+ P2.6 × 6) 3本を外します。



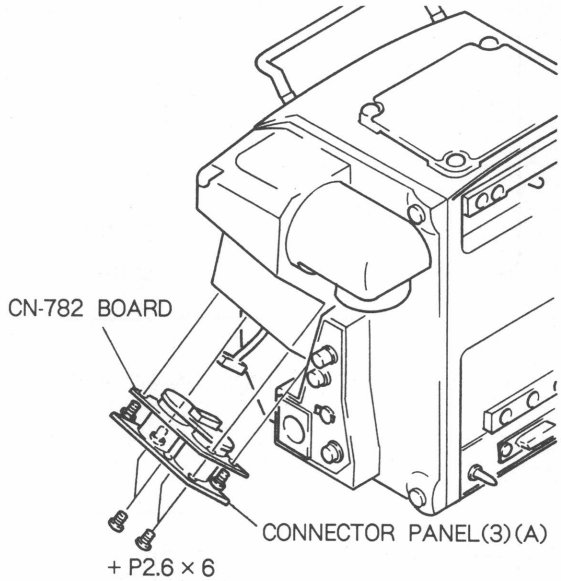
3. CN-784基板からCN4を外します。
4. 付属の110号型インカムジャックから出ているハーネスをCONNECTOR PANELの穴に通し, CN-784基板のCN4に接続します。
5. CONNECTOR PANELを取り付けます。
6. 110号型インカムジャックをねじ (+ P2.6 × 6) 2本で取り付けます。



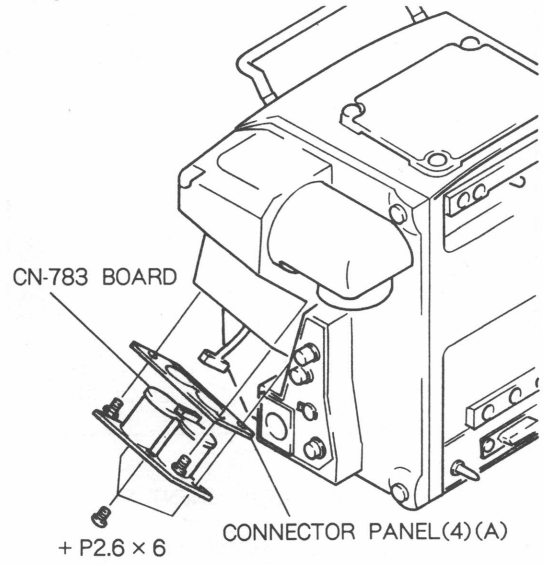
1-5-5. MIC／LINEコネクタの交換方法

工場出荷時はオスの3Pコネクタが付いています。付属のメスの3Pコネクタを使用する場合，交換方法を下記の手順で説明します。

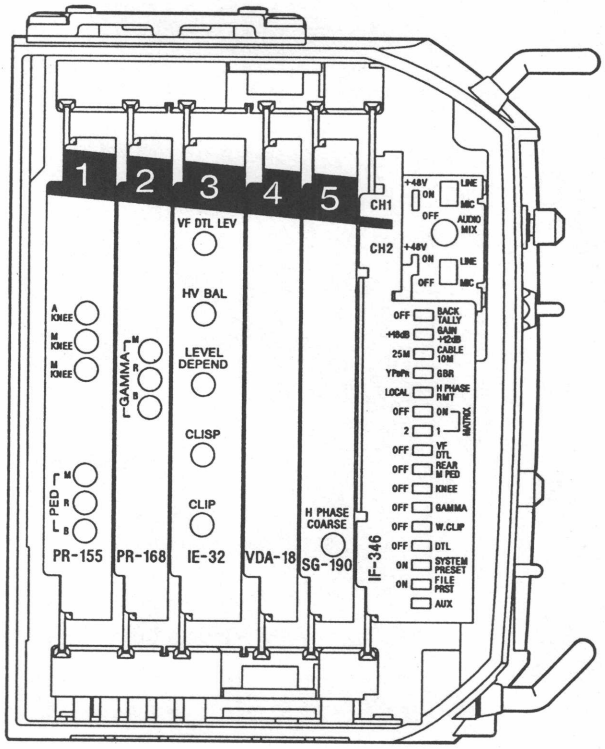
1. オスの3Pコネクタを止めているねじ（＋P2.6×6）4本を外します。
2. コネクタを引っかかるまでゆっくり引き出し止め，CONNECTOR PANEL(3)(A)を止めているねじ（＋P2.6×6）3本を外します。
3. CN-782基板からCN78を外します。

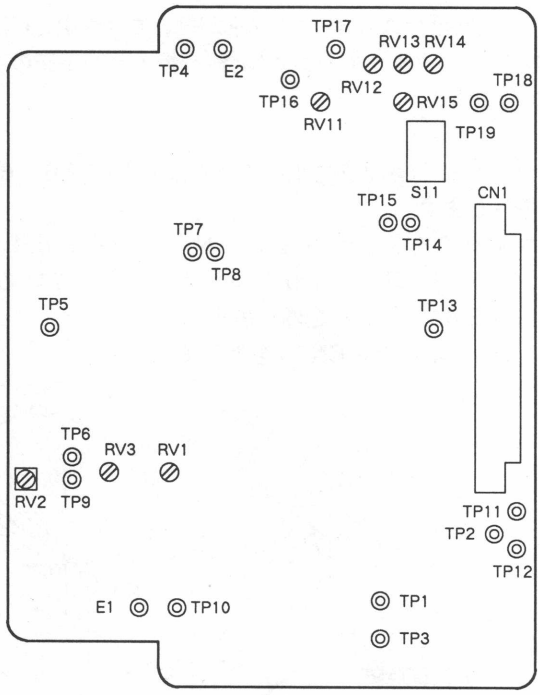


4. CN-783基板にCN78を取り付けます。
5. 手順2と同じ要領で付属のCONNECTOR PANEL(4)(A)をねじ（＋P2.6×6）2本で取り付けます。
6. メスの3Pコネクタをねじ（＋P2.6×6）3本で取り付けます。



1-6. 基板内スイッチの設定





SG-190 BOARD (COMPONENT SIDE)

SG-190基板

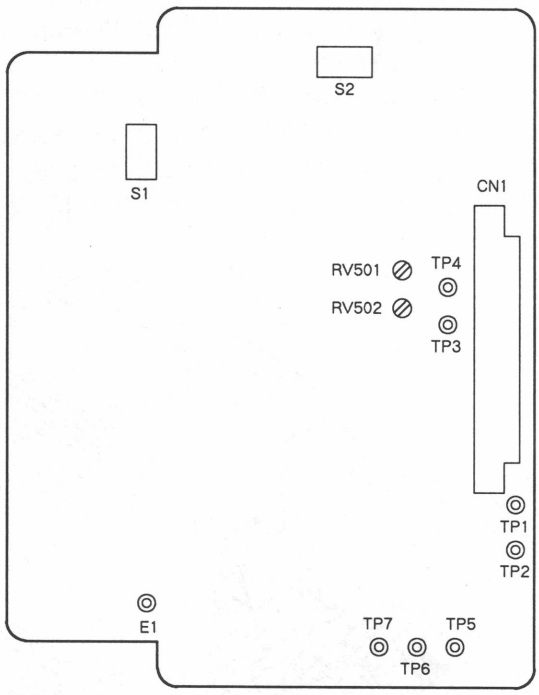
- S11 (INCOM-MIC)
  ヘッドセットのマイクの種類に合わせて「DYNAMIC」,「CARBON」のどちらかに設定します。
  工場出荷時は「CARBON」側に設定されています。

IF-346基板

- S1 (CPU RESET)
  このスイッチを押すとCPUがリセットされます。

- S2 (MODE SELECT)

	ON	OFF	通常位置
S2-1	CHU TEST PULSE ENABLE	NORMAL	OFF
S2-2	REFERENCE TEST PULSE ENABLE	NORMAL	OFF
S2-3	—	—	—
S2-4	—	—	—

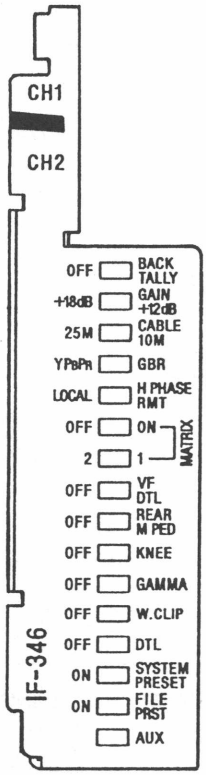


IF-346 BOARD (COMPONENT SIDE)

- S101（BACK TALLY ON／OFF）
  このスイッチを「ON」にするとHDCD-50，またはHDCR-50／350から送られてくるRED TALLY信号およびCALLに応じてリアパネルのTALLYランプが点灯しますが「OFF」にすると点灯しません。
  工場出荷時は「ON」に設定されています。

- S102（GAIN ＋12dB／＋18dB）
  カメラヘッドのGAIN UPスイッチにより選択できるゲインは0／＋6／＋12dBですがこのスイッチを切り換えることにより最大ゲイン＋12dBを＋18dBに変更することができます。
  工場出荷時は「＋12dB」に設定されています。

- S103（CABLE 25M／10M）
  HDC-500とHDCA-50を専用接続ケーブル25mで分離して使用する場合「25M」に設定します。その際25mのケーブル補償がされます。また専用接続ケーブル10m以下で分離使用する場合「10M」に設定します。
  工場出荷時は，「10M」に設定されています。



IF-346 BOARD
(PANEL SIDE)

- S104（Y PB PR／GBR）
  GBRとY PB PRの出力を切り換えます。
  工場出荷時は「GBR」に設定されています。

- S105（H PHASE LOCAL／REMOTE）
  H PHASEの微調整をリアパネルにあるH PHASEボリュームで行う場合，「LOCAL」側に設定します。HDCD-50側で行う場合「REMOTE」にします。
  工場出荷時は「REMOTE」に設定されています。

- S106（MATRIX ON／OFF）
  このスイッチを「ON」にするとMX-33基板のリニアマトリクス回路が働きます。
  工場出荷時は「ON」に設定されています。

- S107（MATRIX 1／2）
  リニアマトリクスのセレクトスイッチです。
  MATRIX 1：HDC-500をSMPTE 240Mの規格にするマトリクス基板
  MATRIX 2：HDC-500をCCIR R.709の規格にするマトリクス基板
  工場出荷時は「1」に設定されています。

- S108（VF DTL ON／OFF）
  VF上の画像のV方向の輪郭を強調したいとき「ON」にします。またこのスイッチを「ON」にするとVFのPEAKINGスイッチに連動してON／OFFすることができます。
  工場出荷時は「ON」に設定されています。

- S109（REAR M PED ON／OFF）
  リアパネルのBLACKボリュームにてM BLACKを調整する場合「ON」にします。
  工場出荷時は「ON」に設定されています。

- S110（KNEE ON／OFF）
  このスイッチを「ON」にすると，PR-155基板のKNEE回路が働きます。調整時「OFF」にします。
  工場出荷時は「ON」に設定されています。

- S111 (GAMMA ON／OFF)
  このスイッチを「ON」にすると，PR-168基板のGAMMA回路が働きます。調整時「OFF」にします。
  工場出荷時は「ON」に設定されています。

- S112 (W CLIP ON／OFF)
  このスイッチを「ON」にするとVDA-18基板のW CLIP回路が働きます。
  工場出荷時は「ON」に設定されています。

- S113 (DTL ON／OFF)
  このスイッチをONにすると，IE-32基板のDETAIL回路が働きます。
  工場出荷時は「ON」に設定されています。

- S114 (SYSTEM PRESET ON／OFF)
  CPU制御のD／A値を全てプリセット値にするときに「ON」にします。主に調整時に使用します。
  通常は「OFF」にして下さい。

- S115 (FILE PRESET ON／OFF)
  ホワイトゲインとペデスタル以外のCPU制御のD／A値を全てプリセット値にするときに「ON」にします。主にフレアの調整時に使用します。
  通常は「OFF」にして下さい。

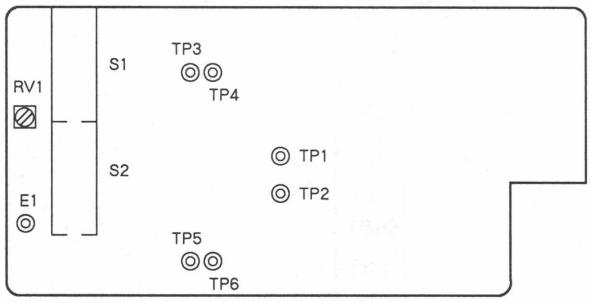
- S116 (AUX)
  予備のスイッチです。

MA-48基板

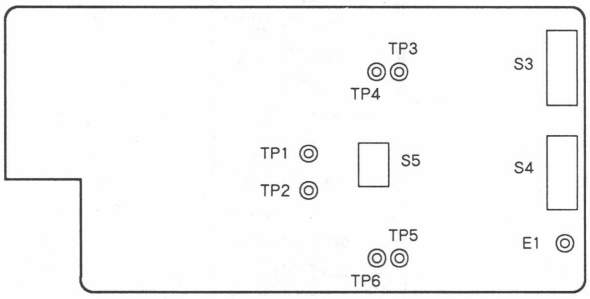
- S1 (CH1 MIC／LINE)
- S2 (CH2 MIC／LINE)
  左側板のMIC／LINEコネクタにマイクを接続する場合，「MIC」に設定します。ライン入力として使用する場合「LINE」に設定します。CH1，CH2それぞれ個別に設定することができます。
  工場出荷時は「MIC」に設定されています。

- S3 (CH1 MIC ＋48V ON／OFF)
- S4 (CH2 MIC ＋48V ON／OFF)
  外部供給電源方式（ファントム方式＋48V）の外部マイクを使用するとき「ON」にします。
  工場出荷時は「OFF」にされています。

- S5 (MIC GAIN －40dB／－60dB)
  外部マイクの出力レベルに応じて設定して下さい。
  工場出荷時は「－60dB」に設定されています。



MA-48 BOARD (COMPONENT SIDE)

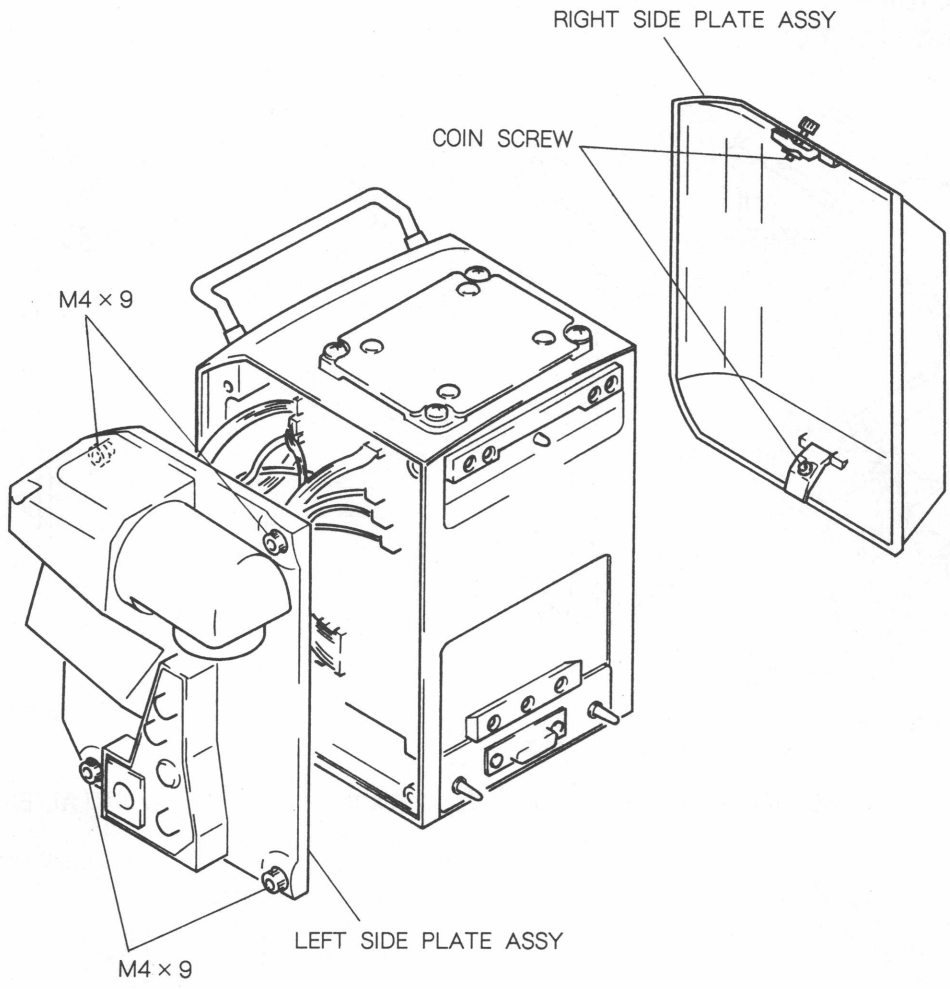


MA-48 BOARD (SOLDERING SIDE)

第2章
主要部品の交換方法

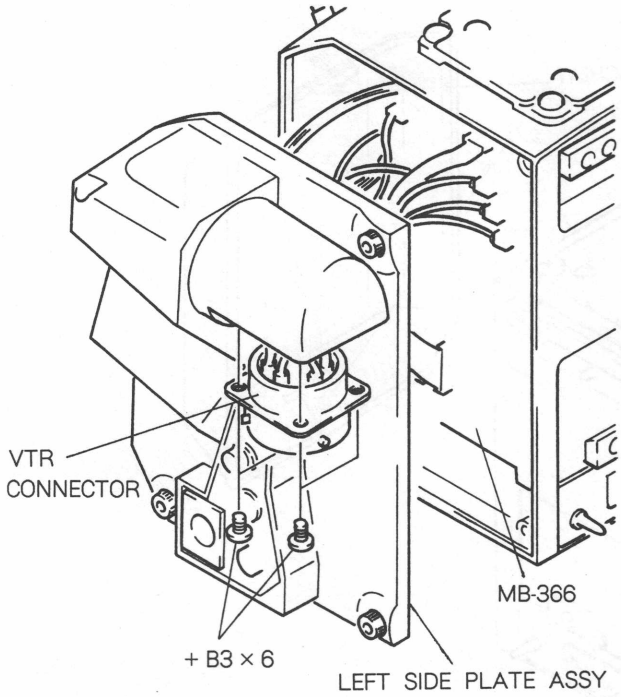
2-1. 外装の外し方

1. COIN SCREW2本をゆるめ，RIGHT SIDE PLATE ASSYを外します。
2. ねじ（M4×9）4本をゆるめ，LEFT SIDE PLATE ASSYを外します。



2-2. VTRコネクタの交換

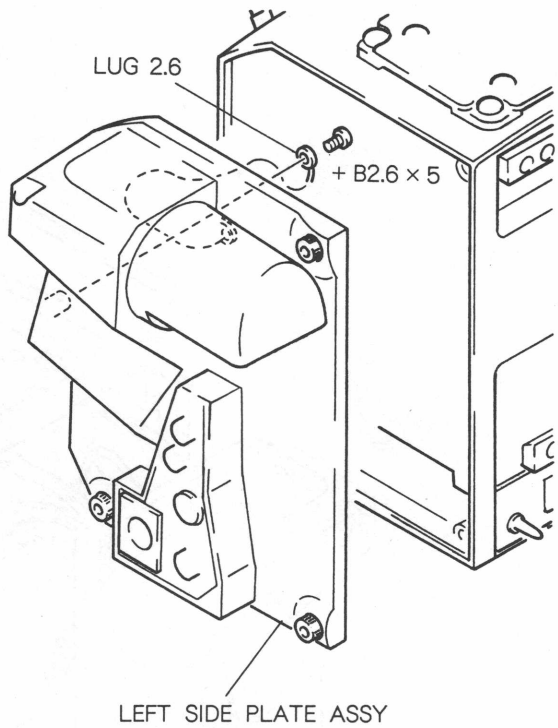
1. 2-1. 外装の外し方を参照し，LEFT SIDE PLATE ASSY を外します。
2. MB-366基板のコネクタ8個（CN3, CN10, CN27, CN32, CN33, CN34, CN36, CN37）を外します。
3. LEFT SIDE PLATE ASSYの裏側のワイヤーホルダからハーネスを外します。
4. VTR CONNECTORを止めているねじ（+ B3 × 6）4本を外しハーネスごと注意深く引き出します。



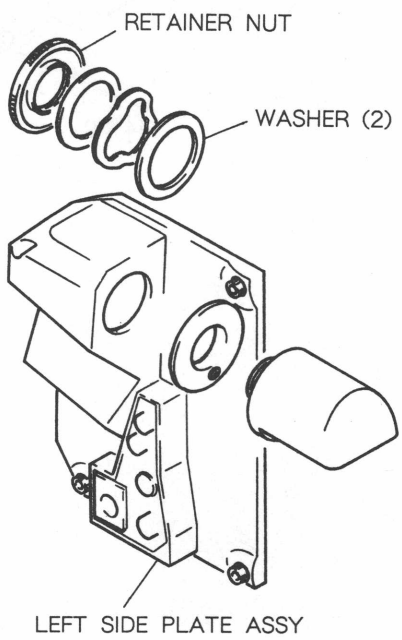
5. コネクタを新しい物と交換し，取り外しと逆の手順で取り付けます。

2-3. コネクタボックスの交換

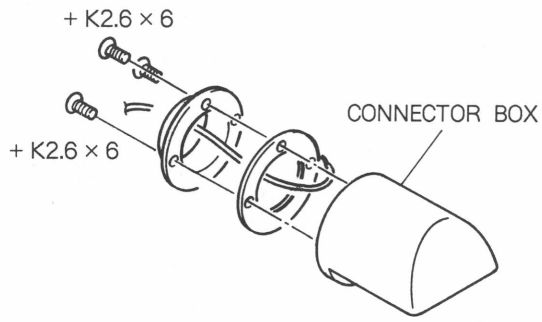
1. 2-2. VTRコネクタの交換を参照し，VTR CONNECTOR を外します。
2. MB-366基板からコネクタ10個（CN2, CN4, CN5, CN8, CN9, CN11, CN12, CN15, CN28, CN35)を外します。
3. ねじ（+ B2.6 × 5）を外し，ラグ端子を外します。



4. 押えナット用スパナを使いRETAINER NUTを外します。



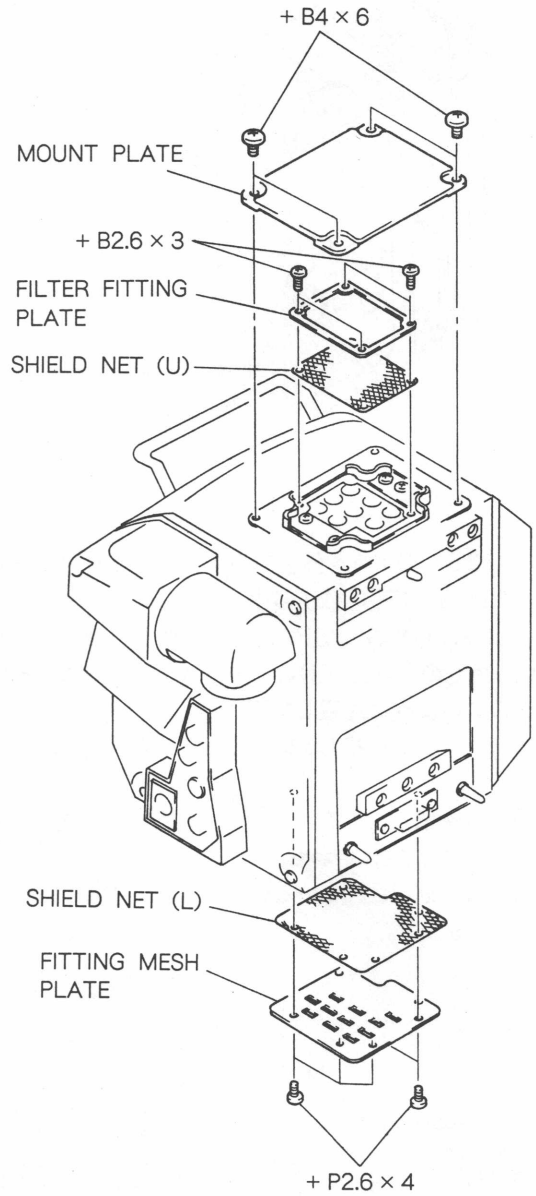
5. ねじ3本（＋K2.6×6）を外し，CONNECTOR BOXを外します。



6. CONNECTOR BOXを新しい物と交換し，取り外しと逆の手順で取り付けます。
   注1：取り付け時WASHER（2）とRETAINER NUTがかまないようにしてください。
   注2：RETAINER NUTを取り付ける時にはネジロックを使用すること。

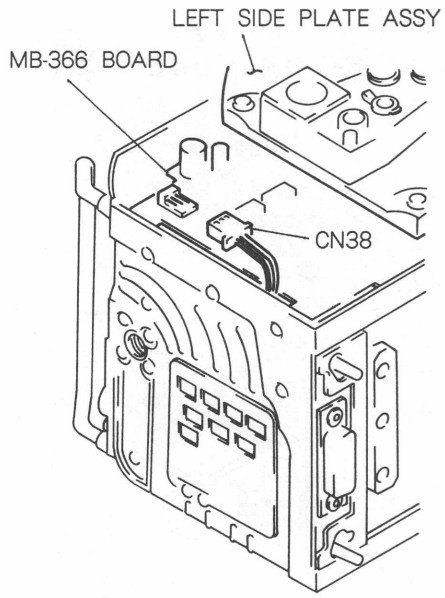
2-4. シールドネット（U）／（L）の交換

1. ねじ（＋B4×6）4本を外し，FILTER FITTING PLATEを外してSHIELD NET（U）を外します。
2. ねじ（＋P2.6×4）6本を外し，FILTER MESH PLATEを外します。
3. SHIELD NET（L）を外します。
4. 新しいSHIELD NETの取り付けは逆の手順で行います。

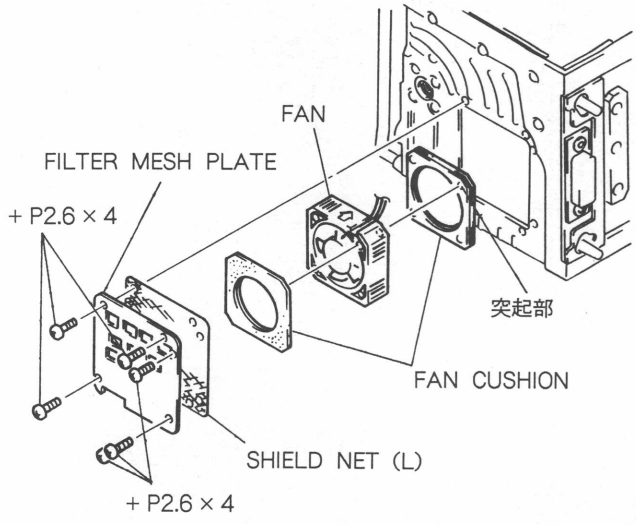


2-5. ファンの交換

1. 2-1外装の外し方を参照し、LEFT SIDE PLATE ASSY を外します。
2. MB-366基板よりコネクターCN38を取り外します。

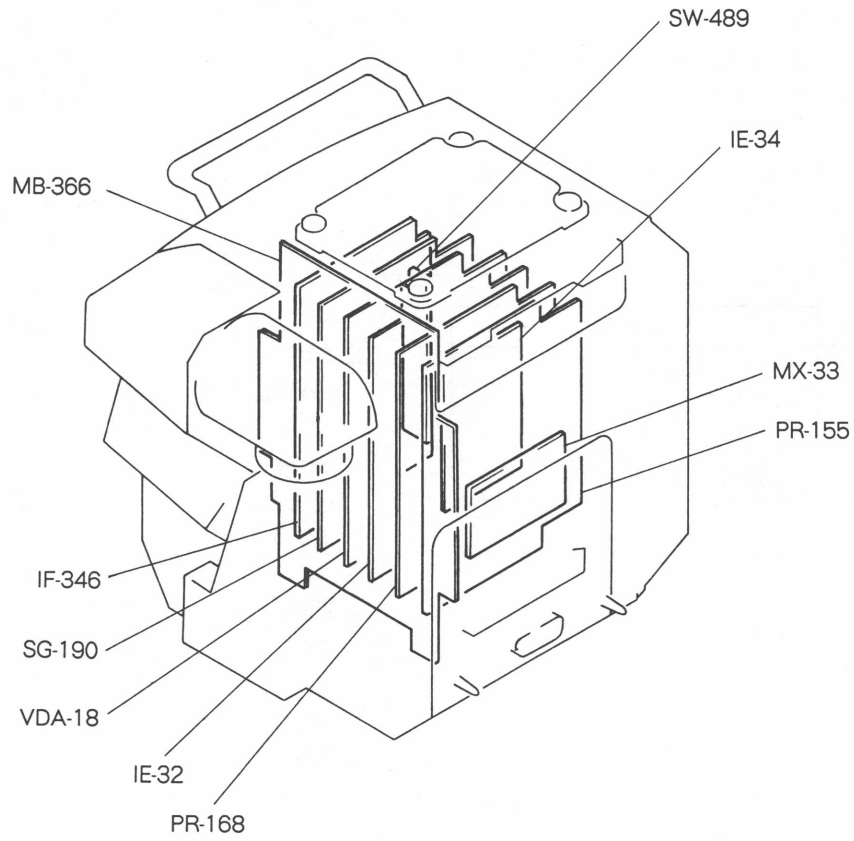


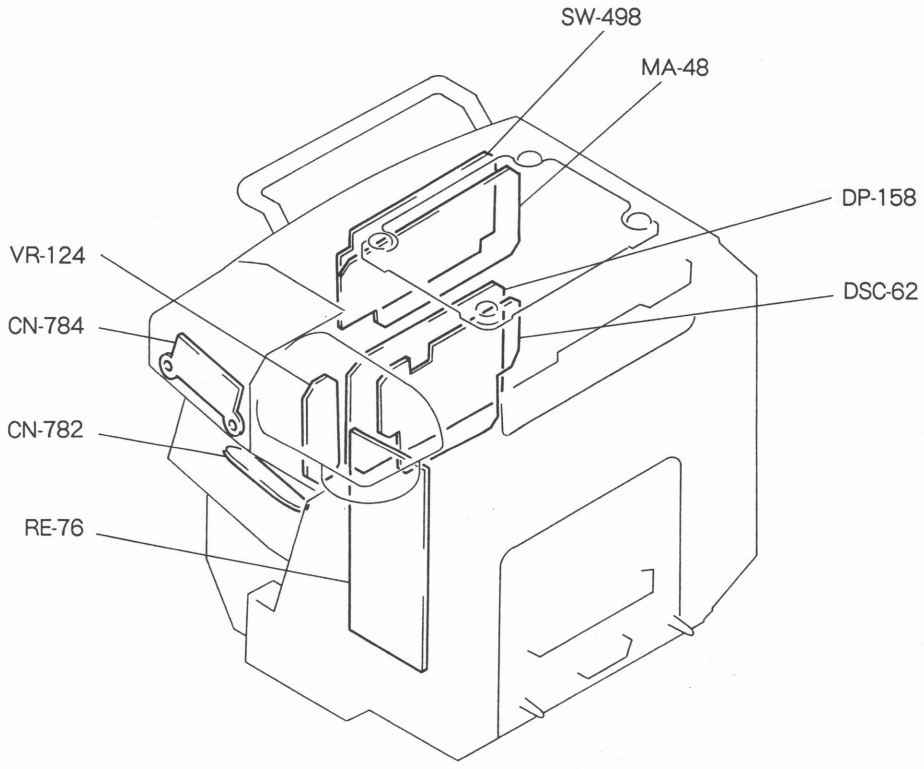
3. ねじ（+P2.6×4）6本を外し、FILTER MESH PLATE 及び SHIELD NET（L）を外します。
4. FAN CUSHIONおよびFANを取り外します。
   注）取り外しのとき、FANのハーネスが基板等に引っかからないように注意して下さい。
5. FANを新しい物と交換し、取り外しと逆の手順で取り付けます。
   注1：FANを取り付ける際、FAN CUSHIONの突起部をFANの穴に合わせて差し込むこと。
   注2：FANに刻印されている矢印の向きに注意して取り付けること。



第3章
サービスインフォメーション

3-1. 基板配置図





3-2. サービス上の注意事項

3-2-1. PROM, PLD

PROM, PLDにはオリジナル品名の末尾にそのプログラムの名称が記載されています。下表にはその名称が太い文字で示されています。
また, バージョン変更された場合, この末尾の名称が変わります。オリジナル品名のみ（プログラム化されていない）は絶対に使用しないこと。

基板	Ref. No	名称
DSC-62	IC12	27C512-DSC62-V1.0
IF-346	IC7	9800-IF346-V1.0
	IC8	27C512-PADP-V1.0
SG-190	IC19	5128-SG190-V1.0

3-2-2. 補修用部品の注意事項

(1) 安全重要部品
回路図, 分解図, 電気部品表中, ⚠印および ▒ で囲まれた部品は安全性を維持するために重要な部品です。従って, これらの部品を交換するには必ず指定の部品と交換して下さい。

(2) 部品の共通化
ソニーから供給される部品はセットに実装されているものと異なることがあります。これは部品の共通化, 改良等によるものです。分解図や電気部品表中には現時点での共通化された部品が記載されています。

(3) 部品在庫
分解図, 電気部品表中, SP欄がSで示されている部品は常時在庫しています。
SP欄が“O”で示されている部品は交換頻度が低い部品であるので在庫しないことがあり, 納期が長くなることがあります。

(4) コンデンサ, インダクタ, 抵抗の単位
回路図, 分解図, 電気部品表中, 特に明記したものを除き, 下記の単位は省略されています。
コンデンサ : μF
インダクタ : μH
抵抗 : Ω

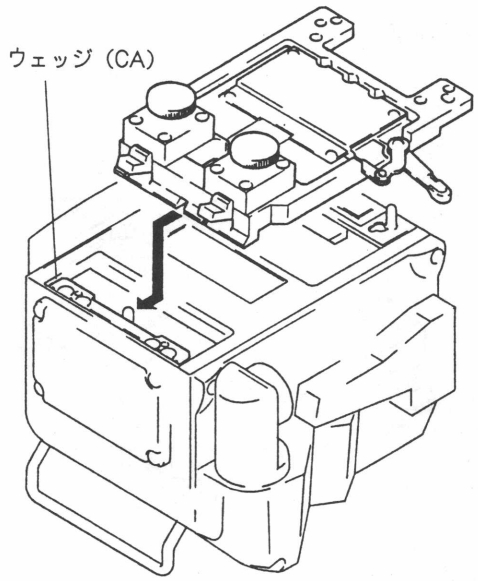
3-3. ドッキング治具の使用方法

CNプレートおよびウェッジ（小）はかん合部の精度を保つため特殊な治具を使用して取り付けられています。CNプレートおよびウェッジ（小）の交換時以外は、ねじをゆるめたり外したりすることは避けて下さい。以下に治具の使い方について説明をします。

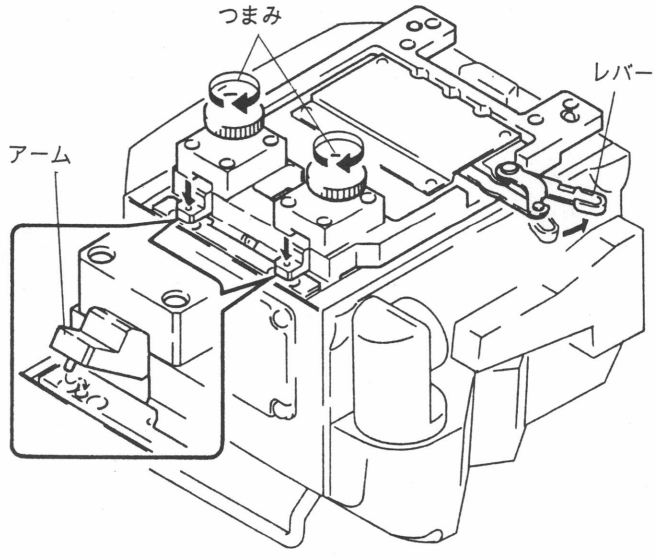
ドッキング治具（B）：ソニー部品番号J-6391-220-A

ドッキング治具の取り付け方

1. ウェッジ（CA）にドッキング治具のウェッジをかみ合わせます。



2. アームの突起をウェッジ（CA）の穴に入れつまみを回して固定します。そしてレバーを矢印方向にロックします。



注意：ドッキング治具を接続する際、セットスクリューC（図1）の締め付け具合によりレバーがロックできなかったり、反対にドッキング治具が接続できなかったりすることがあります。この場合レバーがロックするようにあらかじめセットスクリューCを調整して下さい。

3-3-1. ウェッジ（小）交換時の使用方法

1. ウェッジ（小）交換後、ウェッジ（小）を本体にとめているねじ（3本）を仮締めします。

2. ドッキング治具の取り付け方を参照し、ドッキング治具を取り付けます。

3. A部のねじをしっかり締めます。（図1）

3-3-2. CNプレート交換時の使用方法

1. CNプレート交換後、CNプレートを本体にとめているねじ（4本）を仮締めします。

2. ドッキング治具の取り付け方を参照し、ドッキング治具を取り付けます。

3. B部のねじをしっかり締めます。（図1）

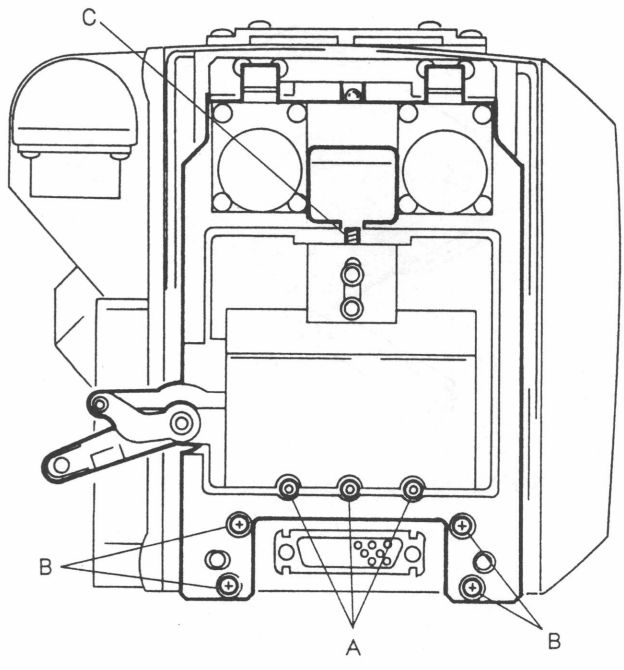
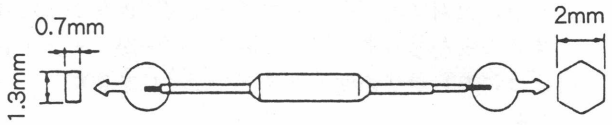


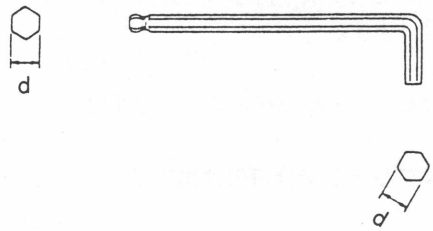
図1

3-4. 治工具

調整用ドライバー　　ソニー部品番号 7-700-733-01

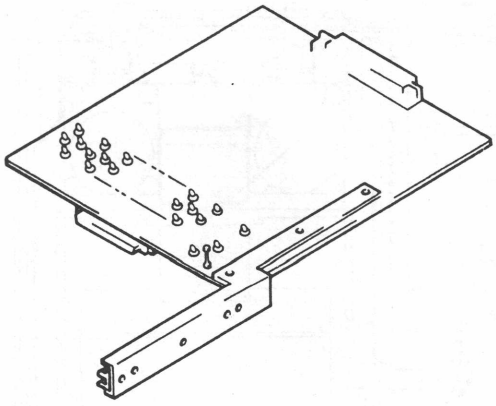


ボールポイントレンチ（BONDHUS製）
ソニー部品番号 7-721-130-54（d = 3.0mm）
7-721-130-55（d = 4.0mm）



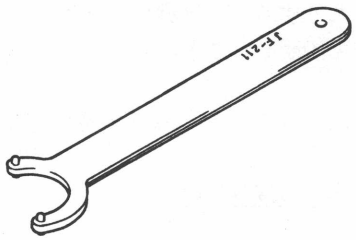
110号型インカムジャックへの交換やCCUコネクタの交換時，使用します。

延長基板 EX-317（HDC-500付属品）
ソニー部品番号 A-8271-249-A



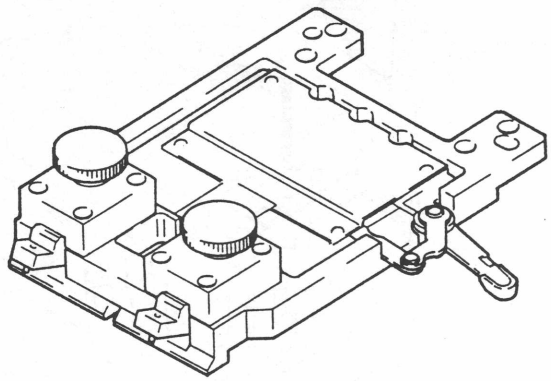
カード基板の点検および修理時に使用します。

押えナット用スパナ（JF-211）
ソニー部品番号 J-6272-110-A



コネクタボックスの交換時使用します。

ドッキング治具（B）
ソニー部品番号J-6391-220-A



CNプレートおよびウェッジ（小）の交換時、使用します。

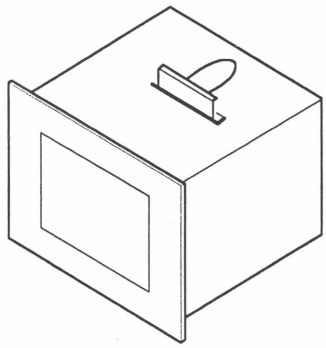
第4章
調整要項

4-1. 準備

4-1-1. 使用機器

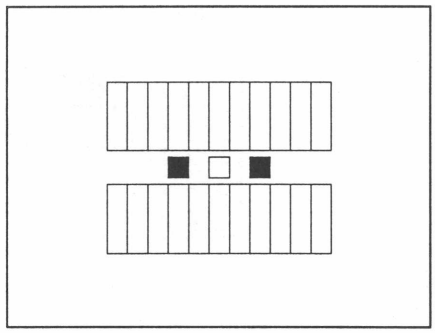
J-6029-140-B	パターンボックス PTB-500

PTB－100も使用できます。



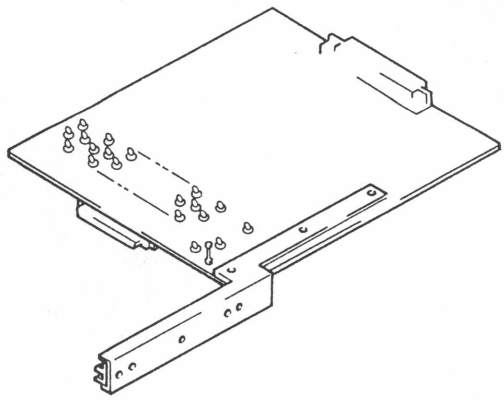
J-6026-130-B	グレイスケールチャート

中央の白部分の両側にベルベット（黒）を貼って下さい。



A-8271-249-A	延長基板EX-317

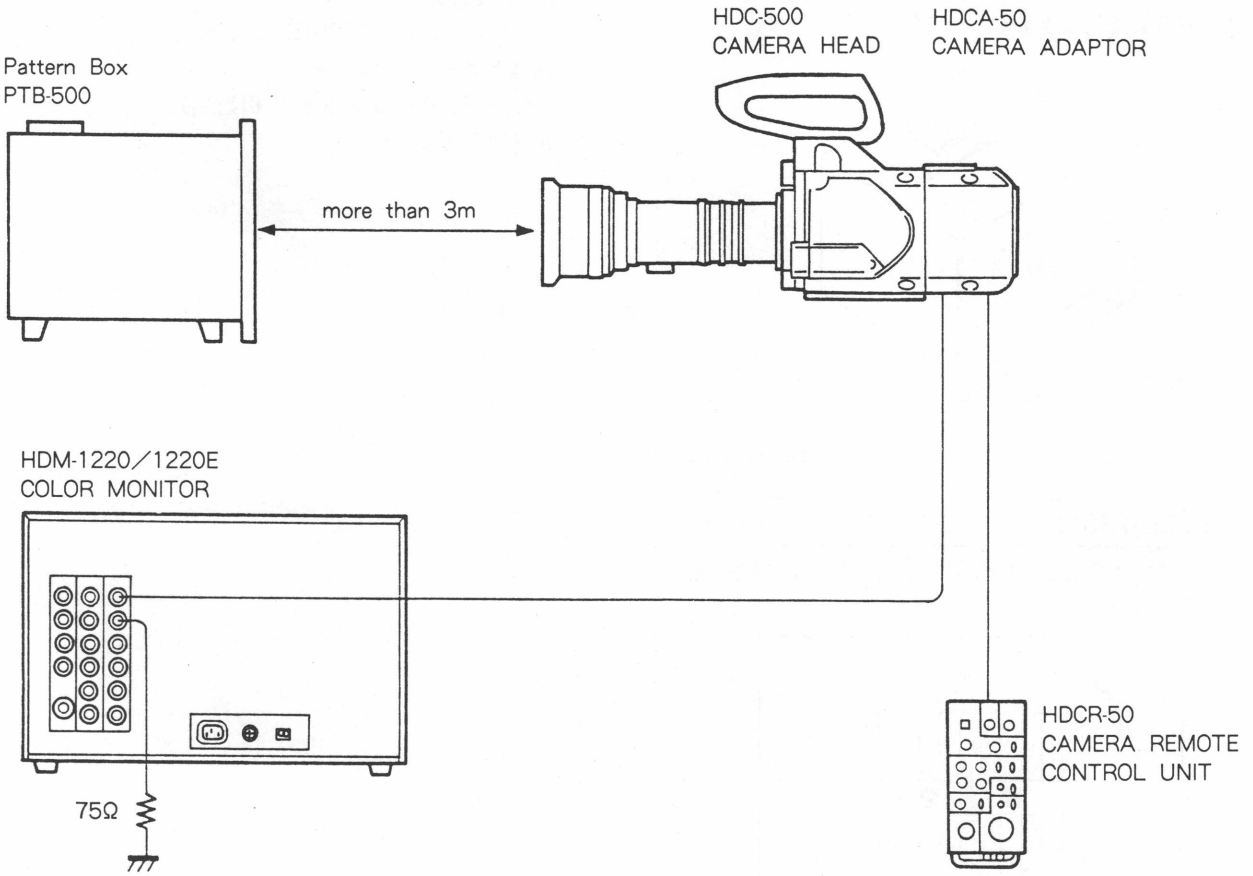
付属品



測定器

- デジタル電圧計
- オシロスコープ
  （テクトロニクス2465または相当品）
- HDVS波形モニター
  （テクトロニクス1730HDまたは同等品）
- HDVSカラーモニター
  （ソニーHDM-1220または相当品）
- 低周波発振器

4-1-2. 接続


HDC-500
CAMERA HEAD
HDCA-50
CAMERA ADAPTOR
Pattern Box
PTB-500
more than 3m
HDM-1220／1220E
COLOR MONITOR
75Ω
HDCR-50
CAMERA REMOTE
CONTROL UNIT

4-2. 調整

4-2-1. 初期設定

HDCR-50

GAMMA	: PRESET
KNEE	: MANUAL, 反時計方向一杯○
W／B BALANCE	: メカニカルセンター
DTL	: メカニカルセンター
MASTER BLACK	: メカニカルセンター
CHU POWER	: ON
MODE	: TEST
GAIN	: 0 dB
SHUTTER	: OFF

HDCA-50

リアパネル

INCOM LEVEL	: メカニカルセンター
INCOM MIC	: ON
BLACK	: メカニカルセンター
DTL	: メカニカルセンター
H PHASE	: メカニカルセンター
EAR	: メカニカルセンター

IF-346 BOARD

S101 (BACK TALLY ON／OFF)	: ON
S102 (GAIN ＋12dB／＋18dB)	: +12dB
S103 (CABLE 10M／20M)	: 10M
S104 (GBR／YPBPR)	: GBR
S105 (H PHASE REMOTE／LOCAL)	: REMOTE
S106 (MATRIX ON／OFF)	: OFF
S107 (MATRIX 1／2)	: 1
S108 (VF DTL ON／OFF)	: ON
S109 (REAR MAS PED ON／OFF)	: OFF
S110 (KNEE ON／OFF)	: OFF
S111 (GAMMA ON／OFF)	: OFF
S112 (WHT CLIP ON／OFF)	: OFF
S113 (DTL ON／OFF)	: OFF
S114 (SYSTEM PRESET ON／OFF)	: ON
S115 (FILE PRESET ON／OFF)	: OFF
S116 (AUX)	: 右へ倒す

注意：調整終了後，下記のようにします。

IF-346 BOARD

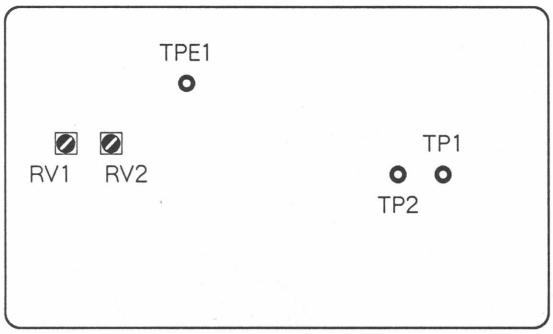
S109(REAR MAS PED ON／OFF)	: ON
S110 (KNEE ON／OFF)	: ON
S106 (MATRIX ON／OFF)	: ON
S111 (GAMMA ON／OFF)	: ON
S112 (WHT CLIP ON／OFF)	: ON
S113 (DTL ON／OFF)	: ON
S114(SYSTEM PRESET ON／OFF)	: OFF

4-2-2. 注意事項

- 下記に示す調整ボリュームについては，調整が困難ですので，絶対に回さないように注意して下さい。
  - ⊘CV1／IF-346基板
  - ⊘RV501／IF-346基板
  - ⊘RV502／IF-346基板
  - ⊘RV2／PR-155基板

注意事項：この調整を行った場合は，全ての調整項目を確認する必要があります。

測定器：　　デジタル電圧計
基板延長：　　RE-76基板
調整手順
1. ＋5.5V調整
　測定点　　：TP1（GND：TPE1）／RE-76基板
　調整箇所　　：RV1／RE-76基板
　規格　　：＋5.5 ± 0.01 V dc
2. －5.5V調整
　測定点　　：TP2（GND：TPE1）／RE-76基板
　調整箇所　　：RV2／RE-76基板
　規格　　：－5.5 ± 0.01 V dc

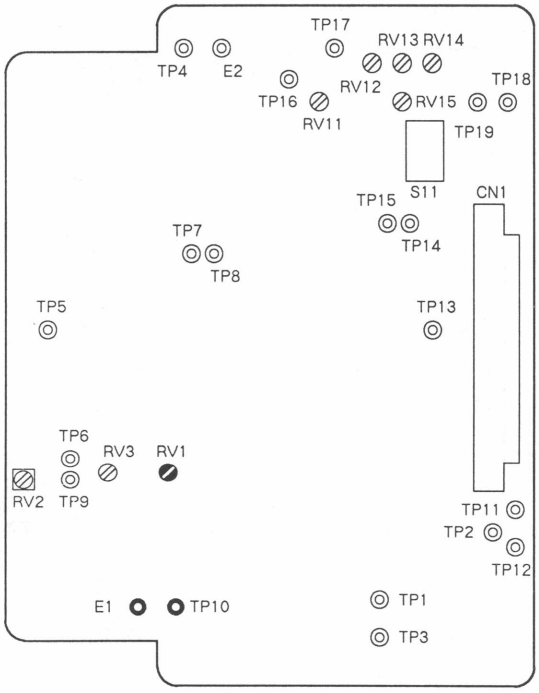


RE-76 BOARD (COMPONENT SIDE)

4-2-4. VCO周波数調整

注意事項：GENLOCKコネクタ／HDCDリアパネルに何も接続していないことを確認して下さい。

測定器：　周波数カウンター
基板延長：　SG-190基板
測定点：　TP10（GND：E1）／SG-190基板
調整箇所：　◐RV1（FREQ ADJ）／SG-190基板
規格：　74,250,000 ± 100 Hz



SG-190 BOARD (COMPONENT SIDE)

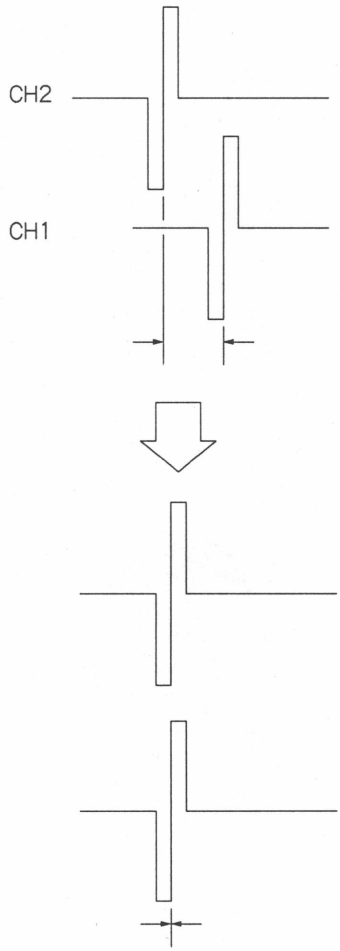
4-2-5. H PHASE REF調整

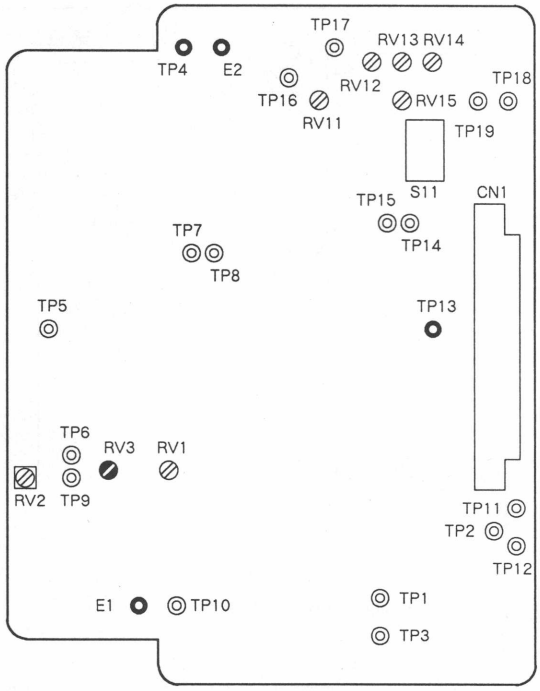
注意事項：GENLOCKコネクタ／HDCDリアパネルにREF SYNC（3値SYNC）が入力されていることを確認して下さい。

測定器：　　オシロスコープ
基板延長：　　SG-190基板
準備：

- ◐RV3 [H PHASE] ／VR-124基板 → メカニカルセンター
- ◐RV2（H PHASE COARSE）／SG-190基板
  →メカニカルセンター

測定点：　　CH1：TP4（GND：E2）／SG-190基板
　　CH2：TP13（GND：E1）／SG-190基板
調整箇所：　　◐RV3（H PHASE REF）／SG-190基板
規格　：





SG-190 BOARD (COMPONENT SIDE)

4-2-6. G／B／R 入力レベル調整（PR-155基板）

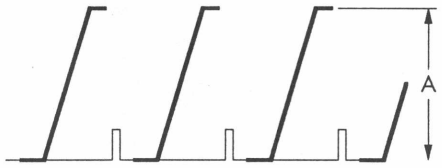
測定器：　　オシロスコープ
基板延長：　　PR-155基板

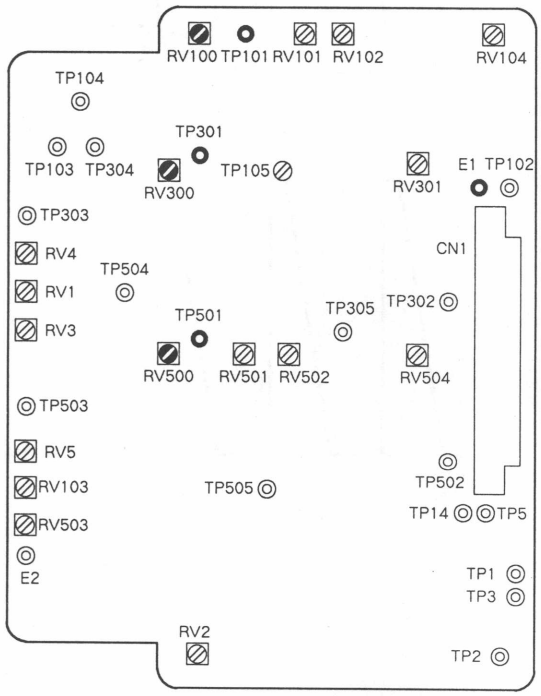
調整手順

- G-ch, B-ch, R-ch毎に下記のように調整します。

PR-155基板

	測定点 (GND : E1)	調整箇所	規　格
G-ch	TP301	◐RV300	A ＝ 1.00 ± 0.01 Vp-p (DC − 2.5 V)
B-ch	TP501	◐RV500	
R-ch	TP101	◐RV100	





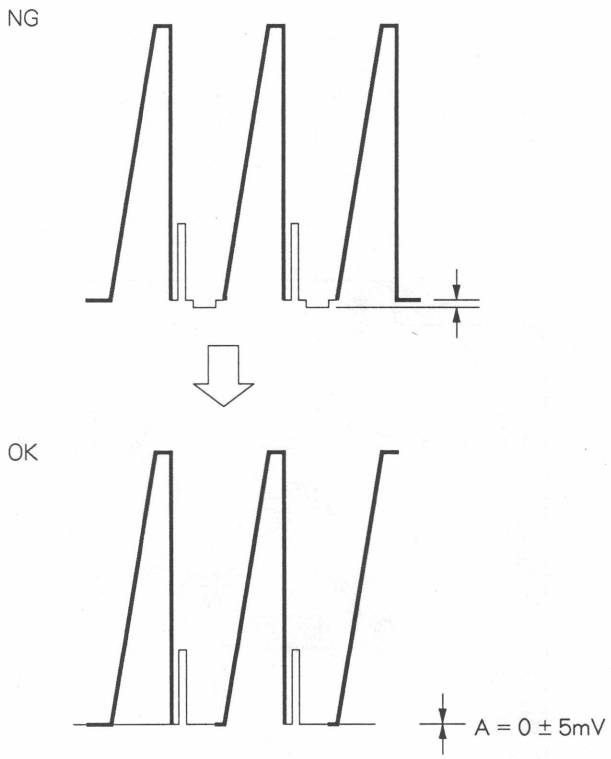
PR-155 BOARD (COMPONENT SIDE)

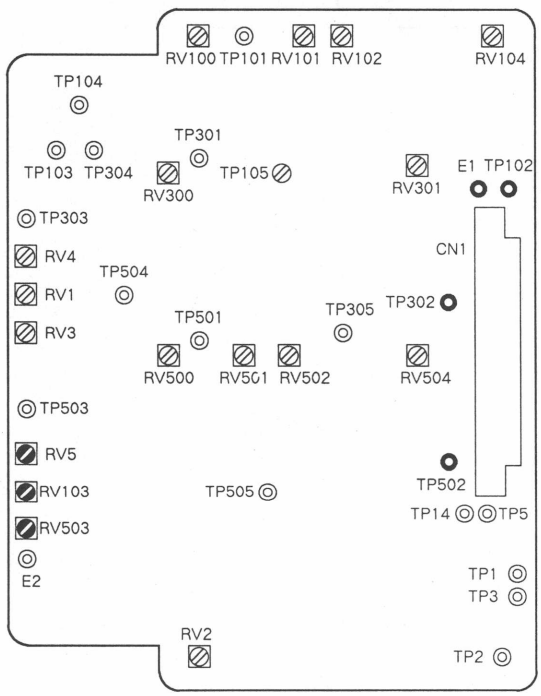
測定器：　　オシロスコープ
基板延長：　　PR-155基板

調整手順
- M-ch, B-ch, R-ch毎に下記のように調整します。

PR-155基板

	測定点 (GND : E1)	調整箇所	規　格
M-ch	TP302	◐RV5	A ＝0±5 mV
B-ch	TP502	◐RV503	
R-ch	TP102	◐RV103	





PR-155 BOARD (COMPONENT SIDE)

4-2-8. G／B／R OUT レベル調整（PR-155基板）

注意事項：4-2-7.ペデスタル調整が完了していること。

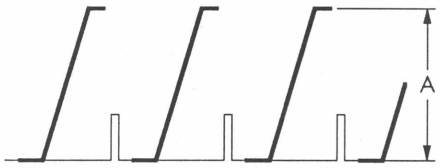
測定器：　　オシロスコープ
基板延長：　　PR-155基板

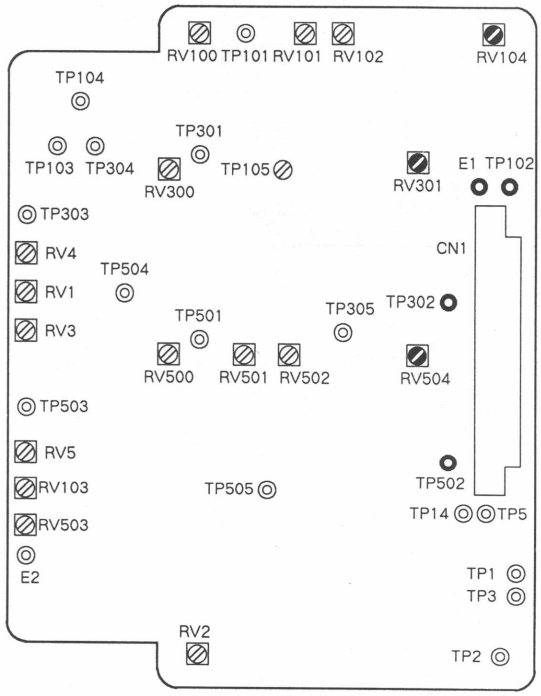
調整手順

- G-ch, B-ch, R-ch毎に下記のように調整します。

PR-155基板

	測定点 (GND：E1)	調整箇所	規　格
M-ch	TP302	◐RV301	A ＝ 1.00 ± 0.01 Vp-p
B-ch	TP502	◐RV504	
R-ch	TP102	◐RV104	





PR-155 BOARD (COMPONENT SIDE)

4-2-9. ニースロープ調整

測定器：　　オシロスコープ
基板延長：　　PR-155基板
準備：

- GAINスイッチ／HDCR-50 →　＋6 dB
- S110（KNEE　ON／OFF）／IF-346基板→ON
- RV3（M KNEE SLOPE）／PR-155基板→時計方向一杯○
- RV502（B KNEE SLOPE）／PR-155基板→時計方向一杯○
- RV102（R KNEE SLOPE）／PR-155基板→時計方向一杯○

調整手順

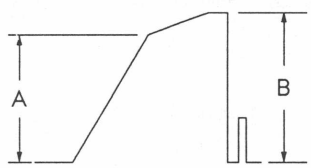
- M-ch，B-ch，R-ch毎に下記のように調整します。

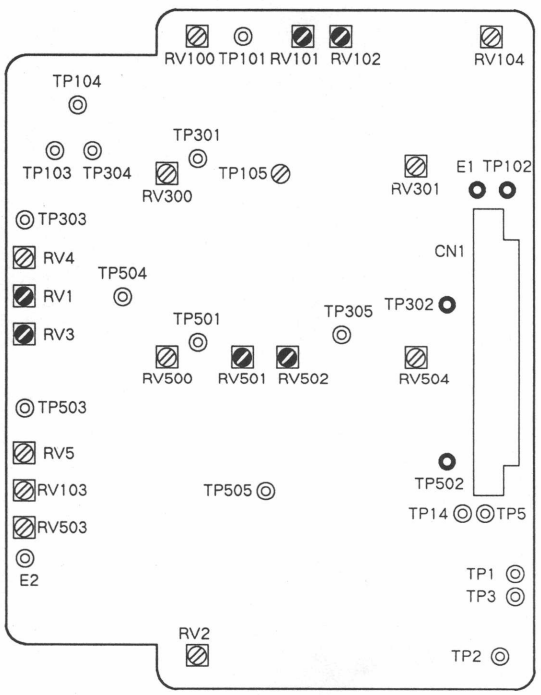
KNEE　POINT調整／PR-155基板

	測定点 (GND：E1)	調整箇所	規　格
M-ch	TP302	◐RV1	A＝ 0.90 ± 0.05　V
B-ch	TP502	◐RV501	
R-ch	TP102	◐RV101	

KNEE　SLOPE調整／PR-155基板

	測定点 (GND：E1)	調整箇所	規　格
M-ch	TP302	◐RV3	B＝ 1.14 ± 0.01　V
B-ch	TP502	◐RV502	
R-ch	TP102	◐RV102	





PR-155 BOARD (COMPONENT SIDE)

注意事項：調整終了後，下記のように行います。
GAINスイッチ／HDCR-50→0 dB
S110（KNEE　ON／OFF）／IF-346基板→OFF

4-2-10. G／B／R 入力レベル調整（PR-168基板）

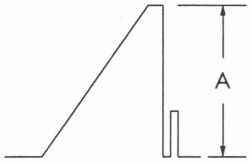
測定器：　　オシロスコープ
基板延長：　　PR-168基板

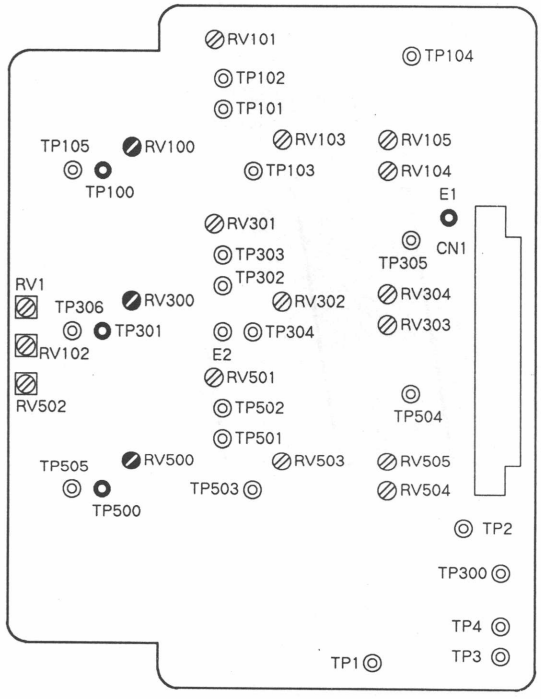
調整手順

- G-ch, B-ch, R-ch毎に下記のように調整します。

PR-168基板

	測定点 (GND：E1)	調整箇所	規　格
G-ch	TP301	RV300	A ＝ 2.00 ± 0.01 Vp-p
B-ch	TP500	RV500	
R-ch	TP100	RV100	





PR-168 BOARD (COMPONENT SIDE)

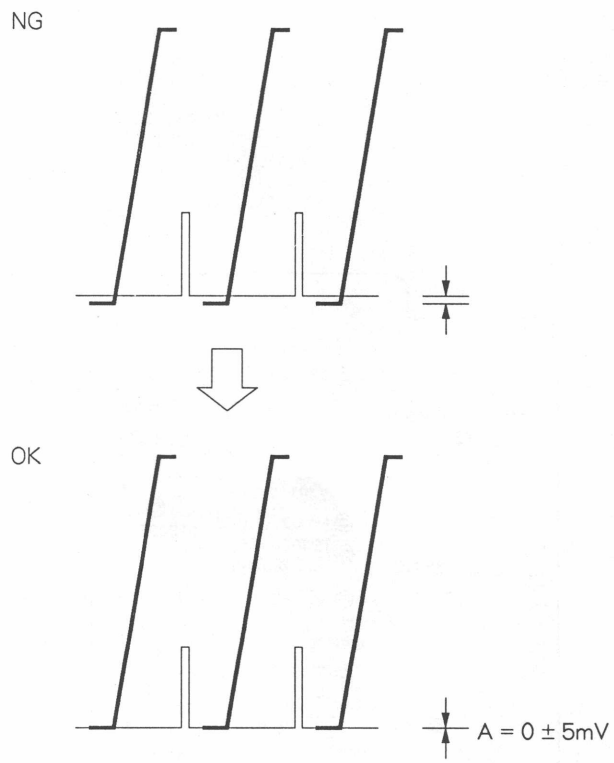
4-2-11. G／B／Rオフセット調整

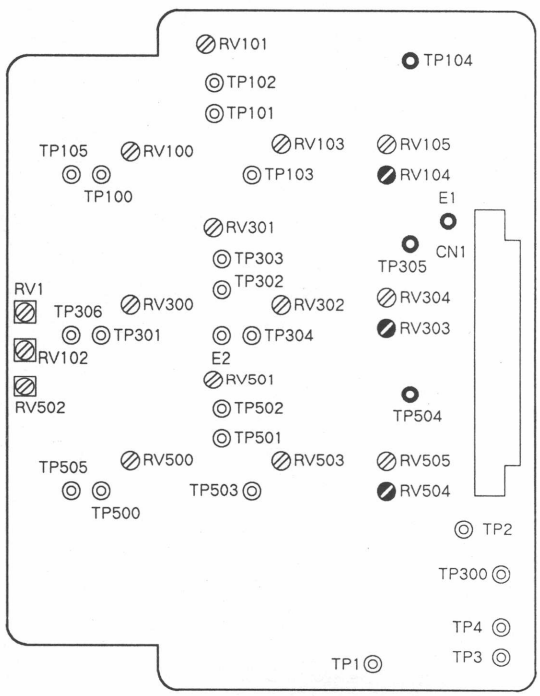
測定器：　　オシロスコープ
基板延長：　　PR-168基板

調整手順
- G-ch, B-ch, R-ch毎に下記のように調整します。

PR-168基板

	測定点 (GND : E1)	調整箇所	規　格
G-ch	TP305	RV303	A = 0 ± 5 mV
B-ch	TP504	RV504	
R-ch	TP104	RV104	





PR-168 BOARD (COMPONENT SIDE)

4-2-12. G／B／R OUT レベル調整（PR-168 基板）

注意事項：4-2-13. ガンマバランス調整が完了していること。

測定器：　　オシロスコープ
基板延長：　　PR-168 基板
準備：

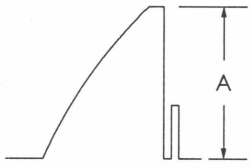
- S111（GAMMA ON／OFF）／IF-346 基板 →ON
- ◐RV105（R CLIP）／PR-168 基板
  → 反時計方向一杯○
  ◐RV304（G CLIP）／PR-168 基板
  → 反時計方向一杯○
  ◐RV505（B CLIP）／PR-168 基板
  → 反時計方向一杯○

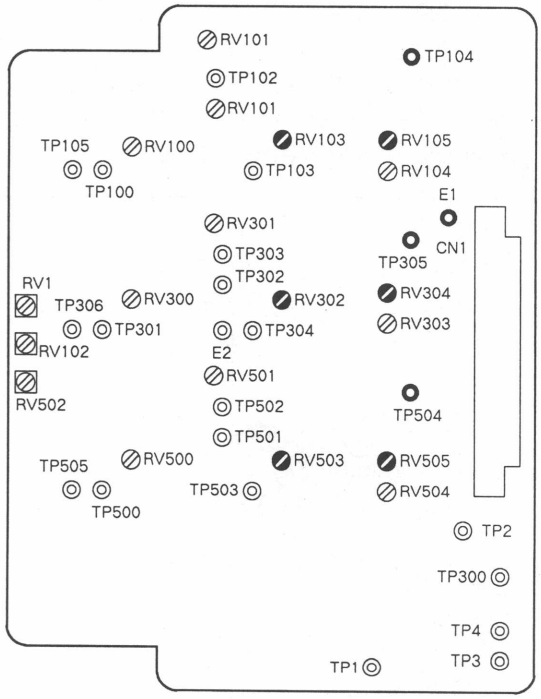
調整手順

- G-ch, B-ch, R-ch 毎に下記のように調整します。

PR-168 基板

	測定点 (GND：E1)	調整箇所	規　格
G-ch	TP305	◐RV302	A ＝ 700 ± 5 mV
B-ch	TP504	◐RV503	
R-ch	TP104	◐RV103	





PR-168 BOARD (COMPONENT SIDE)

注意事項：調整終了後，4-2-14. ガンマレベル調整を
行って下さい。

4-2-13. ガンマバランス調整

注意事項：4-2-15. G／B／Rクリップレベル調整まで通して調整して下さい。

測定器：　　オシロスコープ
基板延長：　　PR-168基板
準備：

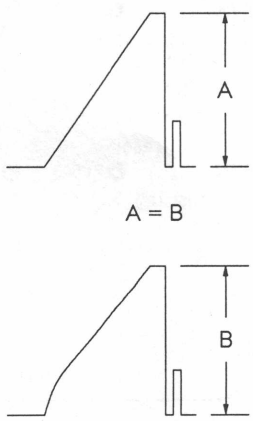
- MODEスイッチ／HDCR-50 → TEST
- ◐RV105（R CLIP）／PR-168基板
  → 反時計方向一杯○
  ◐RV304（G CLIP）／PR-168基板
  → 反時計方向一杯○
  ◐RV505（B CLIP）／PR-168基板
  → 反時計方向一杯○

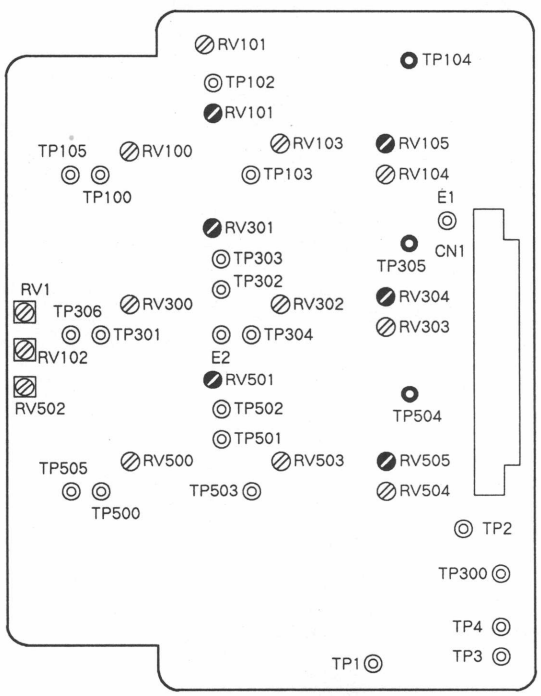
調整手順

- G-ch, B-ch, R-ch毎に下記のように調整します。

PR-168基板

	測定点 (GND：E1)	調整箇所	規　格
G-ch	TP305	◐RV301	S111（GAMMA ON／OFF）スイッチ／IF-346基板をON↔OFFしてもA＝Bになるように調整する。
B-ch	TP504	◐RV501	
R-ch	TP104	◐RV101	





PR-168 BOARD (COMPONENT SIDE)

4-2-14. ガンマレベル調整

注意事項：4-2-12. G／B／R OUT レベル調整（PR-168基板）が完了していること。

測定器：　　オシロスコープ
基板延長：　　PR-168基板
準備：

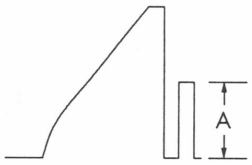
- S111 (GAMMA ON／OFF) スイッチ／IF-346基板→ON
- ◐RV105（R CLIP）／PR-168基板
  → 反時計方向一杯◯
  ◐RV304（G CLIP）／PR-168基板
  → 反時計方向一杯◯
  ◐RV505（B CLIP）／PR-168基板
  → 反時計方向一杯◯

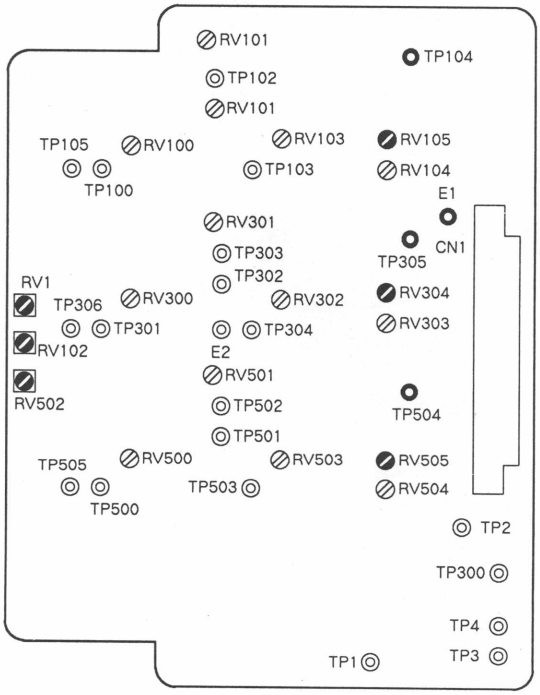
調整手順

- M-ch, B-ch, R-ch毎に下記のように調整します。

PR-168基板

	測定点 (GND：E1)	調整箇所	規　格
M-ch	TP305	◐RV1	A ＝ 350 ± 2 mV
B-ch	TP504	◐RV502	
R-ch	TP104	◐RV102	





PR-168 BOARD (COMPONENT SIDE)

注意事項：調整終了後，4-2-15. G／B／Rクリップレベル調整を行って下さい。

4-2-15. G／B／Rクリップレベル調整

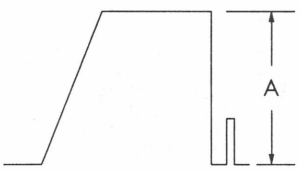
注意事項：4-2-14. ガンマレベル調整が完了していること。

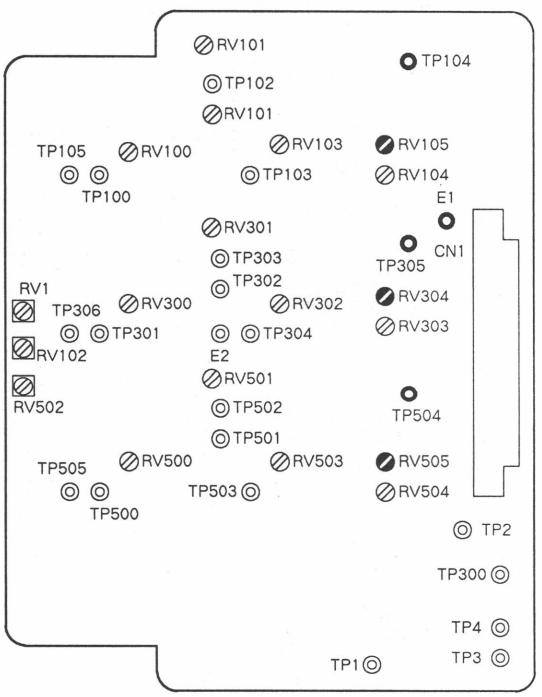
測定器：　　オシロスコープ
基板延長：　　PR-168基板
準備：
- GAINスイッチ／HDCR-50 →　＋6 dB

調整手順
- G-ch, B-ch, R-ch毎に下記のように調整します。

PR-168基板

	測定点 (GND：E1)	調整箇所	規　格
G-ch	TP305	◐RV304	A ＝ 805 ± 10 mV
B-ch	TP504	◐RV505	
R-ch	TP104	◐RV105	





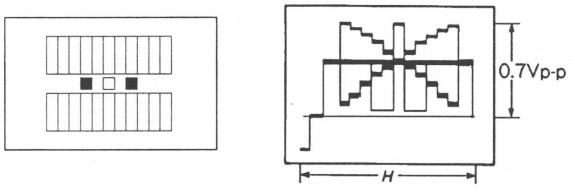
PR-168 BOARD (COMPONENT SIDE)

注意事項：調整終了後，GAINスイッチ／HDCR-50を“0 dB”に戻して下さい。

4-2-16. H DTLバランス調整

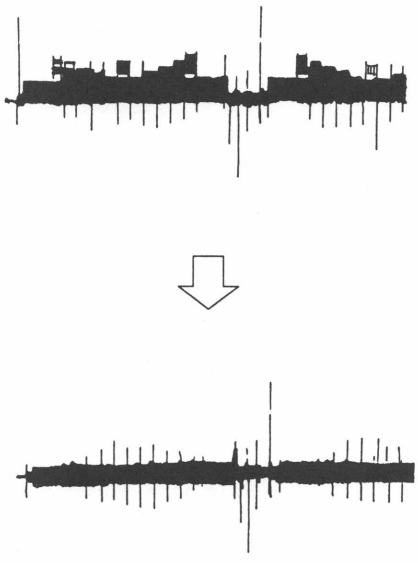
被写体：　　グレースケールチャート
測定器：　　オシロスコープ, 波形モニター
基板延長：　　IE-34基板
準備：
• MODEスイッチ／HDCR-50 → CAM
調整手順
1. グレースケールチャートを下記のように撮像します。

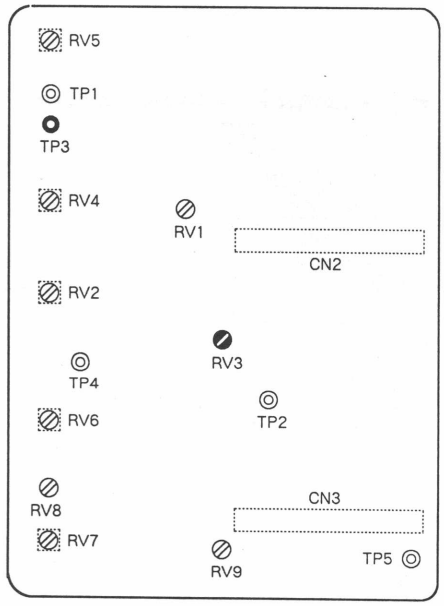
モニター画面　　波形モニター



2. VIDEO OUTレベルが0.7 Vになるようにレンズ絞りを調整します。

3. TP3／IE-34基板の波形がフラットになるように◐RV3／IE-34基板を調整します。



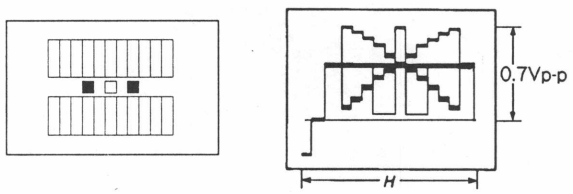


IE-34 BOARD (COMPONENT SIDE)

4-2-17. V DTLバランス調整

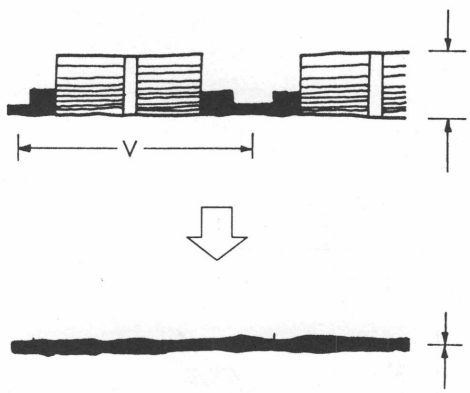
被写体：　　グレースケールチャート
測定器：　　オシロスコープ，波形モニター
基板延長：　　IE-34基板
準備：
• MODEスイッチ／HDCR-50 → CAM
調整手順
1. グレースケールチャートを下記のように撮像します。

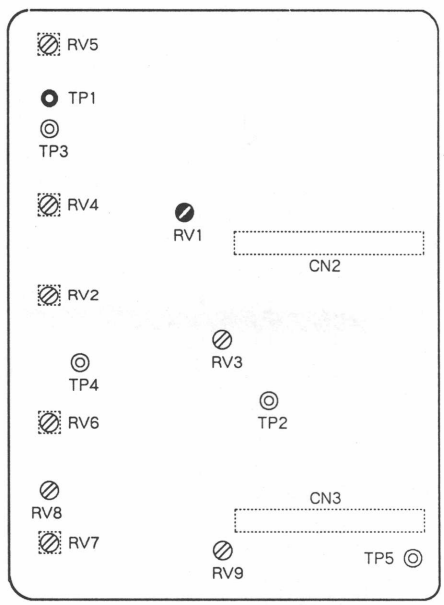
モニター画面　　波形モニター



2. VIDEO OUTレベルが0.7 Vになるようにレンズ絞りを調整します。

3. TP1／IE-34基板の波形がフラットになるように◐RV1／IE-34基板を調整します。





IE-34 BOARD (COMPONENT SIDE)

4-2-18. レベルディペンデント調整

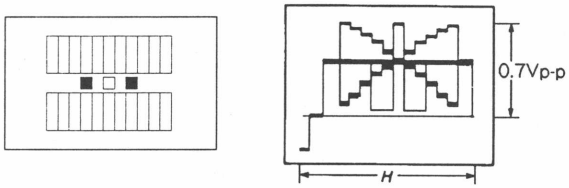
被写体：　　グレースケールチャート
測定器：　　オシロスコープ
基板延長：　　IE-34基板
準備：

- HDCR-50を取り外す。
- MODEスイッチHDC-500→CAM
- DETAILつまみ／HDCA-50リアパネル → 時計方向一杯❍
- S113 DTL ON／OFF ／IF-346基板 → ON
- ◐RV4 H／V BAL ／IE-34基板 → メカニカルセンター
- ◐RV6 CRISP ／IE-34基板 → 反時計方向一杯❍
- ◐RV9 DTL LEVEL ／IE-34基板 → 時計方向一杯❍

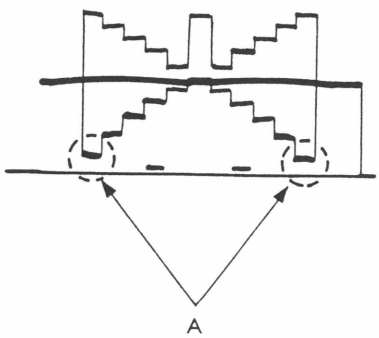
調整手順

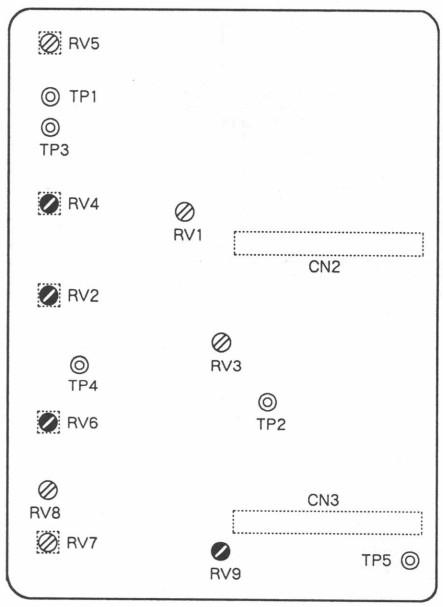
1. グレースケールチャートを下記のように撮像します。

モニター画面　　波形モニター



2. VIDEO OUTレベルが0.7 Vになるようにレンズ絞りを調整します。
3. ◐RV2（LEVEL DEPEND）／IE-34基板を反時計方向一杯❍より時計方向に回していき，A部のヒゲが減り始める点の手前にセットします。





IE-34 BOARD (COMPONENT SIDE)

注意事項：調整終了後，HDCR-50をもとの状態に接続する。

4-2-19. H／V RATIO調整

被写体：　　グレースケールチャート
測定器：　　オシロスコープ
基板延長：　　IE-34基板
準備：

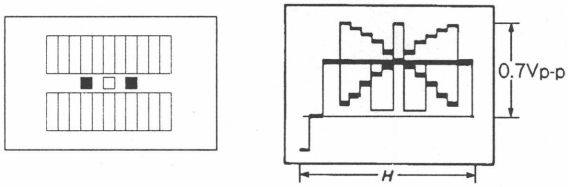
- MODEスイッチ／HDC-500 → CAM
- DETAILつまみ／HDCA-50リアパネル → 時計方向一杯○

- S113 DTL ON／OFF ／IF-346基板 → ON

調整手順

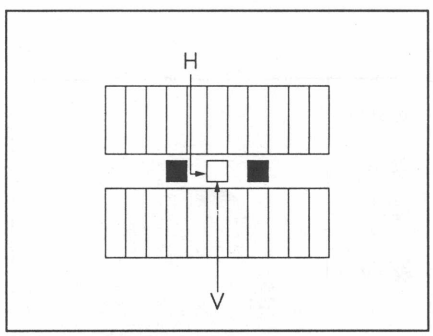
1. グレースケールチャートを下記のように撮像します。

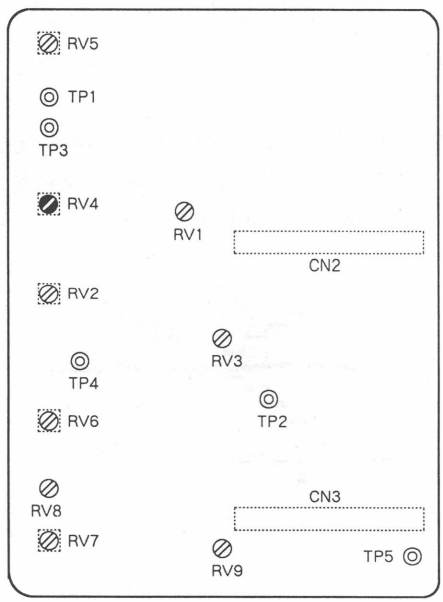
モニター画面　　波形モニター



2. VIDEO OUTレベルが0.7 Vになるようにレンズ絞りを調整します。
3. 水平方向と垂直方向の輪郭補正量が等しくなるように

◐RV4 H／V BAL ／IE-34基板を調整します。





IE-34 BOARD (COMPONENT SIDE)

4-2-20. クリスプニング調整

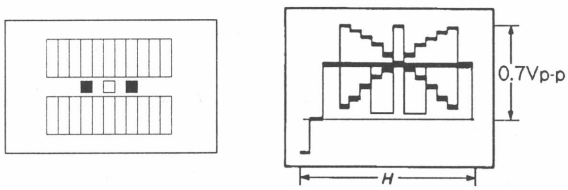
被写体：　　グレースケールチャート
測定器：　　オシロスコープ
基板延長：　　IE-34 基板
準備：

- MODE スイッチ／HDCA-500 → CAM
- DETAILつまみ／HDCA-50 リアパネル → 時計方向一杯○
- S113 DTL ON／OFF ／IF-346 基板 → ON
- ◐RV9 DTL LEVEL ／IE-34基板 → メカニカルセンター

調整手順

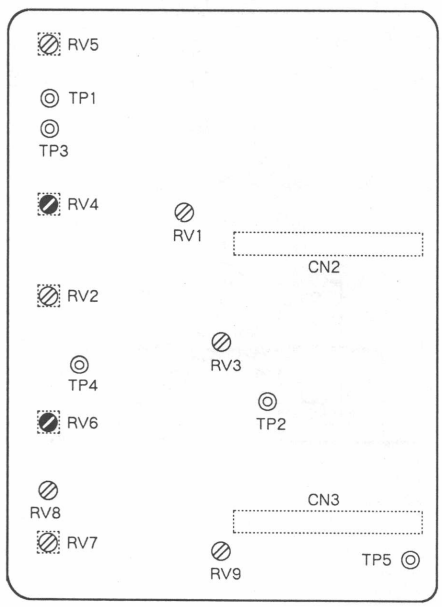
1. グレースケールチャートを下記のように撮像します。

モニター画面　　波形モニター



2. VIDEO OUT レベルが0.7 Vになるようにレンズ絞りを調整します。

3. ◐RV6 CRISP ／IE-34 基板を反時計方向一杯○から徐々に時計方向○に回していき，波形の黒レベル部分のノイズがちょうど減少し始める点になるように調整します。または，適当なクリスプニングレベルになるように調整します。



IE-34 BOARD (COMPONENT SIDE)

4-2-21. DTL クリップレベル調整

被写体：　　グレースケールチャート
測定器：　　オシロスコープ
基板延長：　　IE-34 基板
準備：

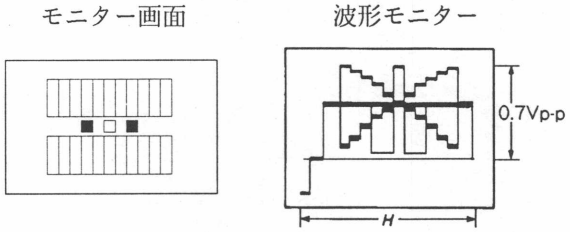
- MODE スイッチ／HDC-500 → CAM
- DETAILつまみ／HDCA-50 リアパネル → 時計方向一杯
- S113 [DTL ON／OFF] ／IF-346 基板 → ON
- ◐RV9 [DTL LEVEL] ／IE-34 基板

  → 時計方向一杯
- ◐RV8（CLIP BAL）／IE-34 基板

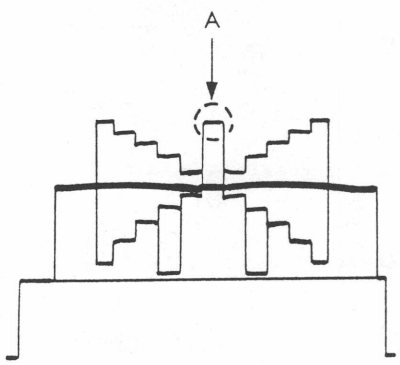
  → メカニカルセンター

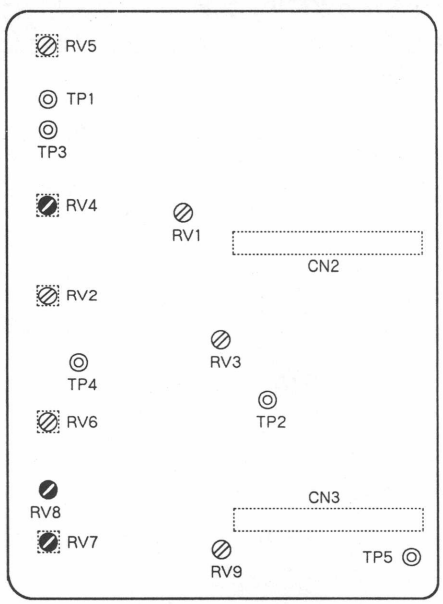
調整手順

1. グレースケールチャートを下記のように撮像します。



2. VIDEO OUT レベルが0.7 Vになるようにレンズ絞りを調整します。
3. ◐RV7（CLIP）／IE-34 基板を反時計方向一杯から徐々に時計方向に回していき，A部のヒゲのレベルが反時計方向一杯のときの2／3になるところにセットします。





IE-34 BOARD (COMPONENT SIDE)

4-2-22. DTL レベル調整

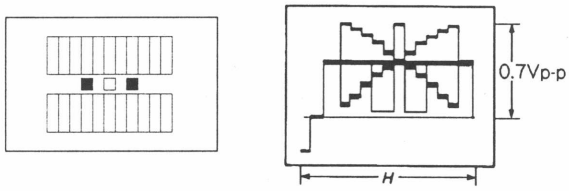
被写体：　　グレースケールチャート
測定器：　　オシロスコープ
基板延長：　　IE-34 基板
準備：

- MODE スイッチ／HDC-500 → CAM
- DETAILつまみ／HDCA-50 リアパネル → 時計方向一杯
- S113 [DTL ON／OFF] ／IF-346 基板 → ON

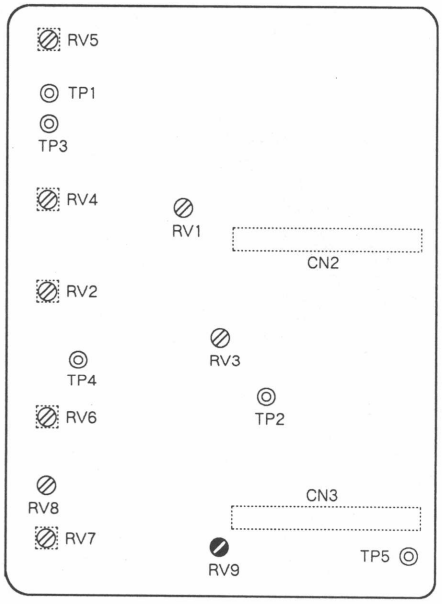
調整手順

1. グレースケールチャートを下記のように撮像します。

モニター画面　　波形モニター



2. VIDEO OUT レベルが0.7 Vになるようにレンズ絞りを調整します。
3. 適当な輪郭補正量になるように RV9 [DTL LEVEL] ／IE-34 基板を調整します。



IE-34 BOARD (COMPONENT SIDE)

4-2-23. VF DTL OUT レベル調整

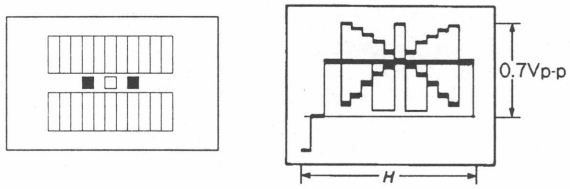
被写体：　　グレースケールチャート
測定器：　　オシロスコープ, ビューファインダー画面
基板延長：　　IE-34 基板
準備 ：

- MODE スイッチ／HDCR-50 → CAM
- S113 DTL ON／OFF ／IF-346 基板 → ON

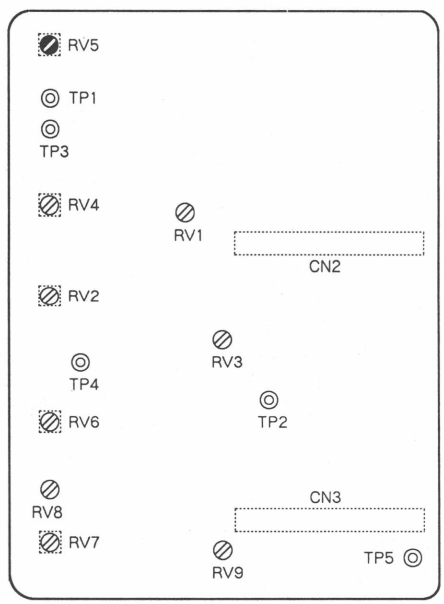
調整手順

1. グレースケールチャートを下記のように撮像します。

モニター画面　　波形モニター



2. VIDEO OUT レベルが 0.7 V になるようにレンズ絞りを調整します。
3. ビューファインダー画面を見ながら, 適当な輪郭補正量になるように◐RV5（VF DTL LEVEL）／IE-34 基板を調整します。



IE-34 BOARD (COMPONENT SIDE)

4-2-24. G／B／R OUT レベル調整（IE-32 基板）

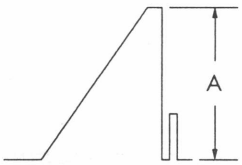
測定器：　　オシロスコープ
基板延長：　　IE-32 基板

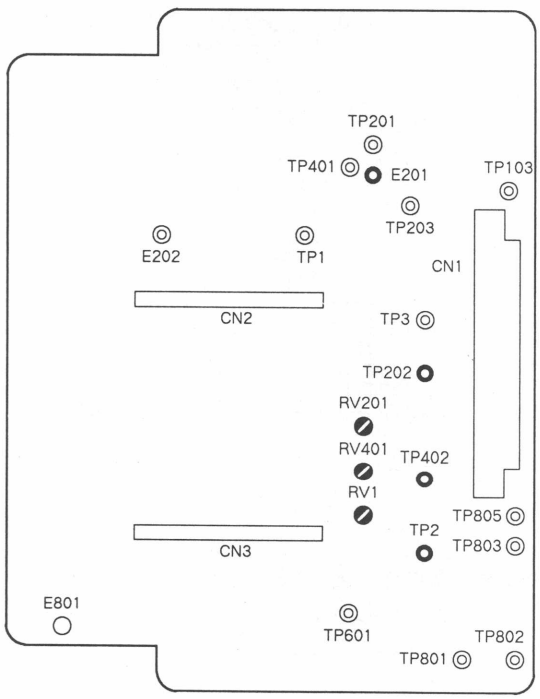
調整手順

- G-ch, B-ch, R-ch 毎に下記のように調整します。

IE-32 基板

	測定点 (GND : E201)	調整箇所	規　格
G-ch	TP402	◐RV401	A = 700 ± 5 mV
B-ch	TP2	◐RV1	
R-ch	TP202	◐RV201	





IE-32 BOARD (COMPONENT SIDE)

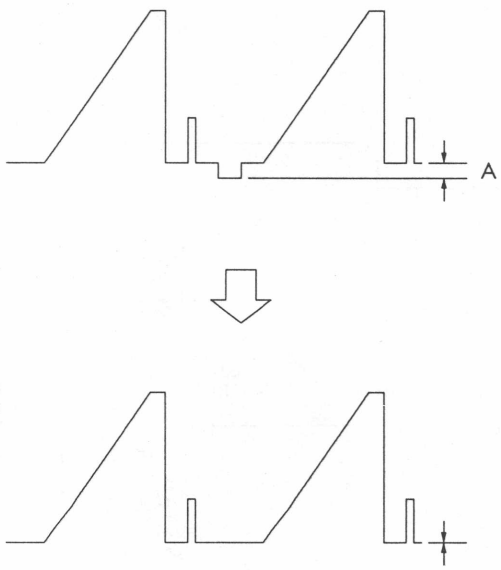
4-2-25. ブラックオフセット調整

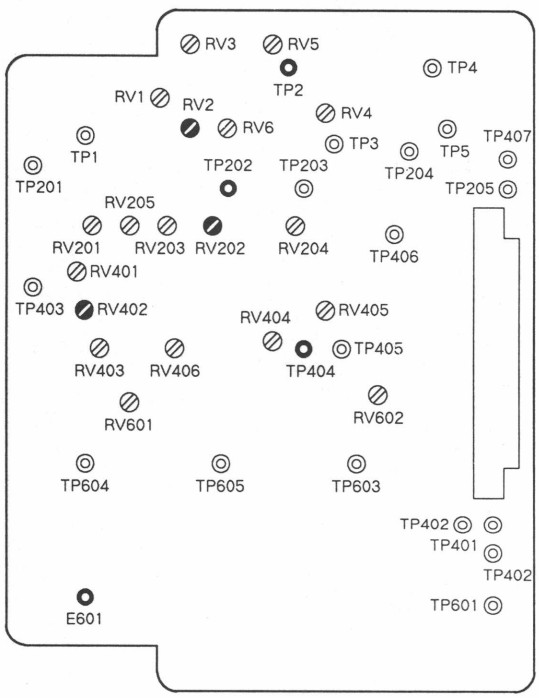
注意事項：4-2-30. P_Bバランス／レベル調整まで通して調整して下さい。

測定器：　　オシロスコープ
基板延長：　　VDA-18基板
準備：
• S112（WHT CLIP ON／OFF）／IF-346基板 → OFF
調整手順
• G-ch, B-ch, R-ch毎に下記のように調整します。

VDA-18基板

	測定点 (GND：E601)	調整箇所	規　格
G-ch	TP202	◐RV202	A ＝ 0 ± 2 mV
B-ch	TP404	◐RV402	
R-ch	TP2	◐RV2	





VDA-18 BOARD (COMPONENT SIDE)

注意事項：調整終了後，4-2-26. G／B／Rビデオレベル調整を行って下さい。

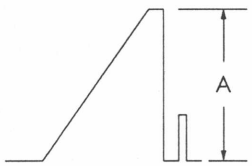
4-2-26. G／B／R ビデオレベル調整

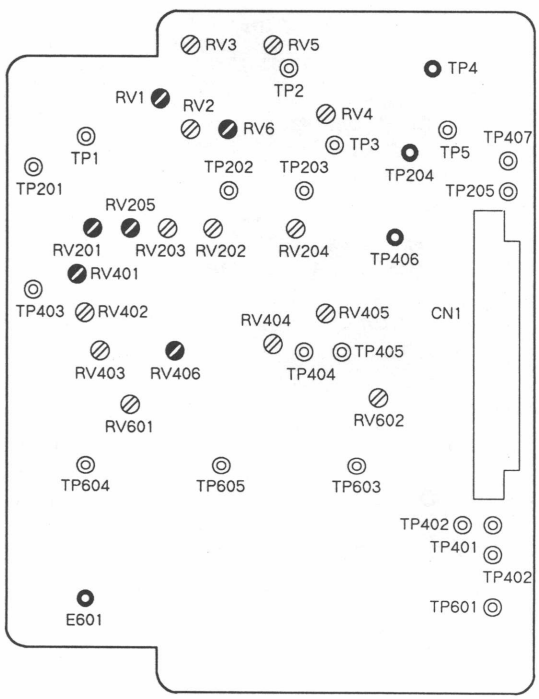
注意事項：4-2-25. ブラックオフセット調整が完了していること。

測定器：　　オシロスコープ
基板延長：　　VDA-18基板
準備：
• S112（WHT CLIP ON／OFF）／IF-346基板 → OFF
調整手順
• G-ch, B-ch, R-ch毎に下記のように調整します。

VDA-18基板

	測定点 (GND：E601)	調整箇所	規　格
G-ch	TP204	◓RV205	A ＝ 1.4 ± 0.01 V
B-ch	TP406	◓RV406	
R-ch	TP4	◓RV6	





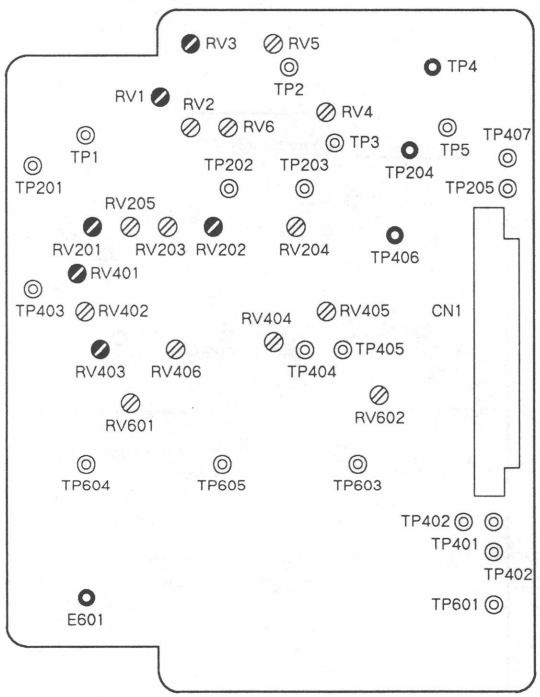
VDA-18 BOARD (COMPONENT SIDE)

測定器：　　オシロスコープ
基板延長：　　VDA-18基板
準備：
- MODEスイッチ／HDCR-50 → BARS
- S104（GBR／YPBPR）／IF-346基板 → YPBPR

調整手順
- G-ch, B-ch, R-ch毎に下記のように調整します。

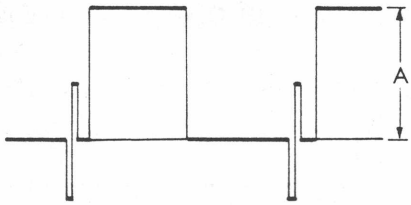
VDA-18基板

	測定点 (GND：E601)	調整箇所	規　格
G-ch	TP204	◢RV203	A = 1.4 ± 0.01 V
B-ch	TP406	◢RV403	
R-ch	TP4	◢RV3	

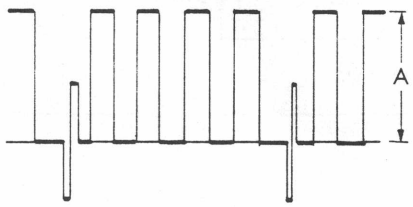


VDA-18 BOARD (COMPONENT SIDE)

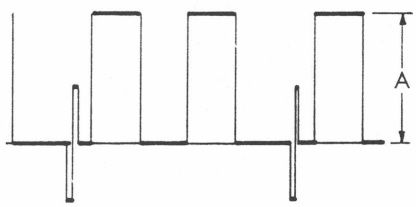
[G]



[B]



[R]



注意事項：調整終了後，4-2-28. Yレベル調整を行って下さい。

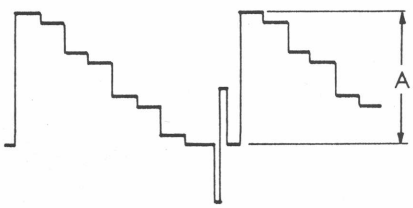
4-2-28. Y レベル調整

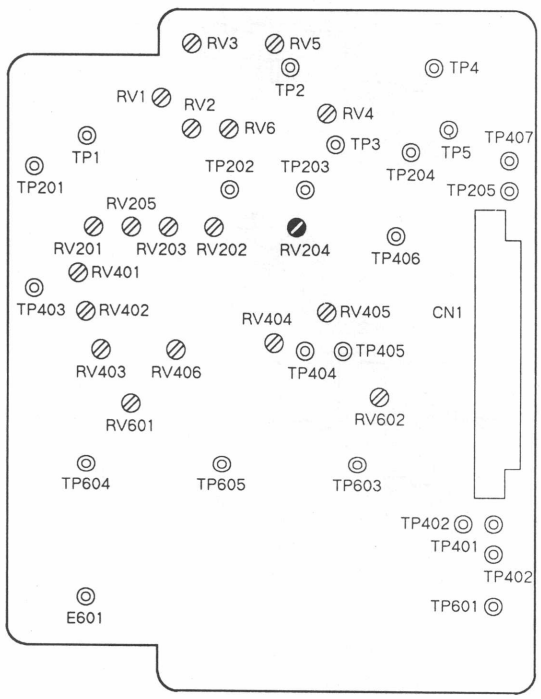
注意事項：4-2-27. G／B／R BARS レベル調整が完了していること。

測定器：　　オシロスコープ
基板延長：　　VDA-18 基板
準備：
- MODE スイッチ／HDCR-50 → BARS
- S104（GBR／YPBPR）／IF-346 基板 → YPBPR

測定点：　　TP204／VDA-18 基板
調整箇所：　　◐RV204／VDA-18 基板
規格：　　A ＝ 1.4 ± 0.01 V

[Y]





VDA-18 BOARD (COMPONENT SIDE)

注意事項：調整終了後，4-2-29. PR バランス／レベル調整
を行って下さい。

4-2-29. PRバランス／レベル調整

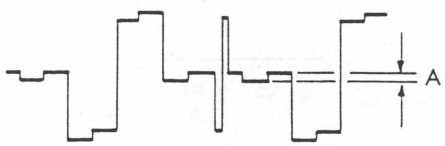
注意事項：4-2-28. Y レベル調整が完了していること。

測定器：　　オシロスコープ
基板延長：　　VDA-18基板
準備：
- MODEスイッチ／HDCR-50 → BARS
- S104（GBR／YPBPR）／IF-346基板 → YPBPR

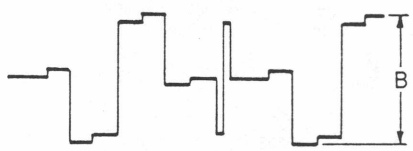
調整手順
1. 測定点：　　TP4／VDA-18基板
   調整箇所：　　◐RV4／VDA-18基板
   規格：　　A ＝ 0 ± 2 mV
2. 測定点：　　TP4／VDA-18基板
   調整箇所：　　◐RV5／VDA-18基板
   規格：　　B ＝ 1.4 ± 0.01 V

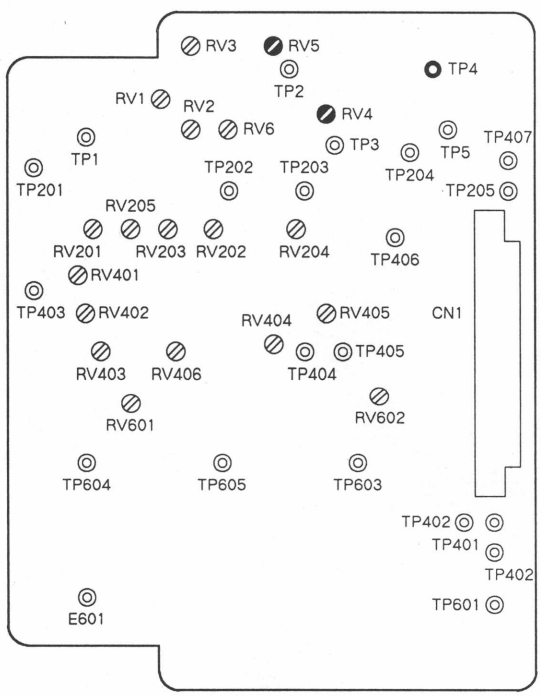
[PR]

NG



OK





VDA-18 BOARD (COMPONENT SIDE)

4-2-30. P_Bバランス／レベル調整

注意事項：4-2-29. P_Rバランス／レベル調整が完了していること。

測定器：　　オシロスコープ
基板延長：　　VDA-18基板
準備：

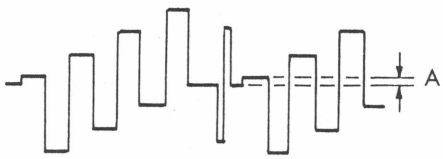
- MODEスイッチ／HDCR-50 → BARS
- S104（GBR／YP_BP_R）／IF-346基板 → YP_BP_R

調整手順

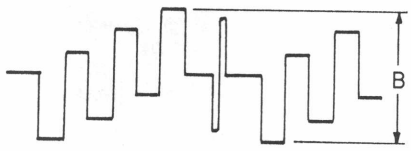
1. 測定点：　　TP406／VDA-18基板
   調整箇所：　　◐RV404／VDA-18基板
   規格：　　A ＝ 0 ± 2 mV
2. 測定点：　　TP406／VDA-18基板
   調整箇所：　　◐RV405／VDA-18基板
   規格：　　B ＝ 1.4 ± 0.01 V

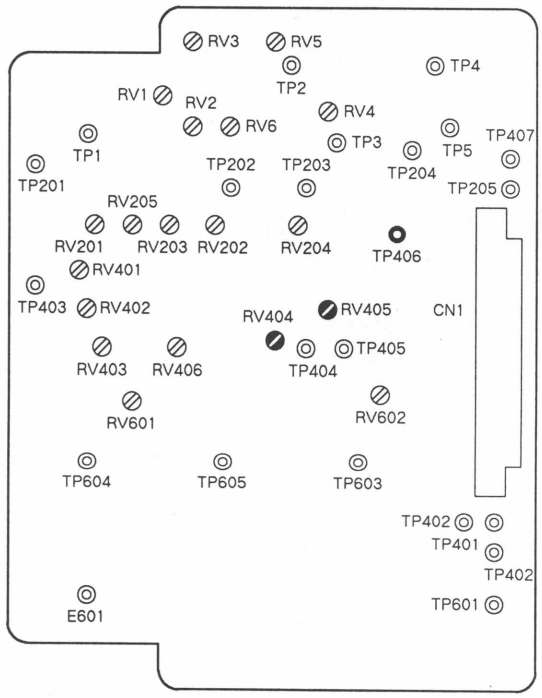
[P_B]

NG



OK



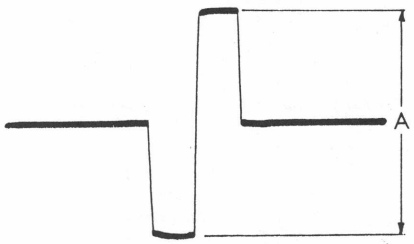


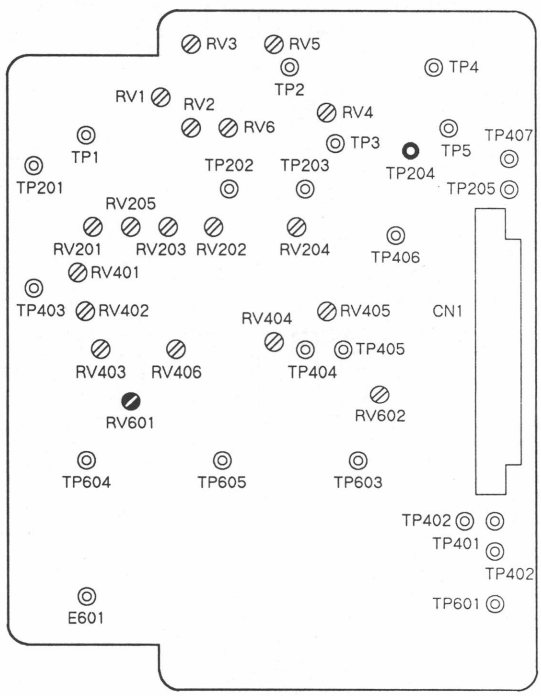
VDA-18 BOARD (COMPONENT SIDE)

4-2-31. SYNC レベル調整

測定器：　オシロスコープ
基板延長：　VDA-18 基板

測定点：　TP204／VDA-18 基板
調整箇所：　◐RV601／VDA-18 基板
規格：　A ＝ 1.2 ± 0.01 V

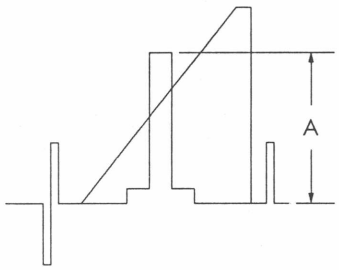


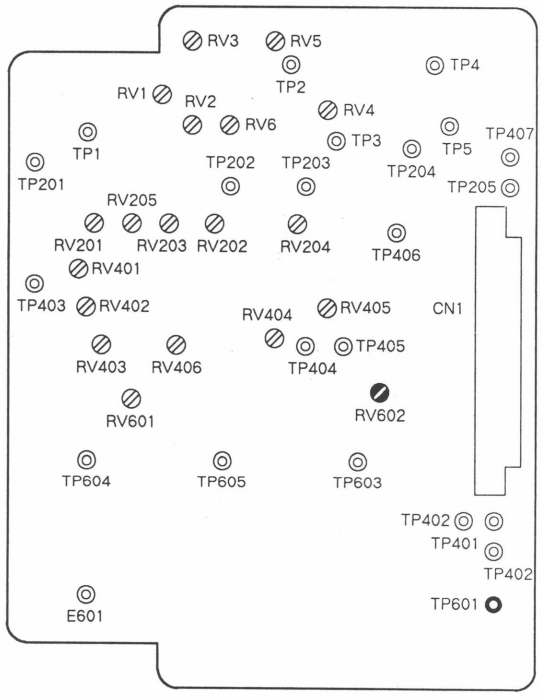


VDA-18 BOARD (COMPONENT SIDE)

4-2-32. CHARACTERレベル調整

測定器：　　オシロスコープ
基板延長：　　VDA-18基板
準備：
• HDCA-50のリアパネルのセンターマーカーをONにする。
測定点：　　TP601／VDA-18基板
調整箇所：　　◐RV602／VDA-18基板
規格：　　A ＝ 1.00 ± 0.01 V





VDA-18 BOARD (COMPONENT SIDE)

4-2-33. ホワイトクリップ調整

測定器：　　オシロスコープ
基板延長：　　VDA-18基板
準備：

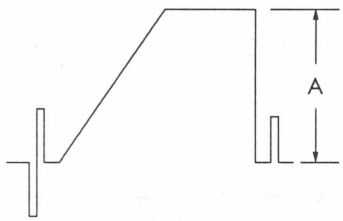
- GAINスイッチ／HDCR-50 →　＋6 dB
- S112（WHT　CLIP　ON／OFF）／IF-346基板 → ON

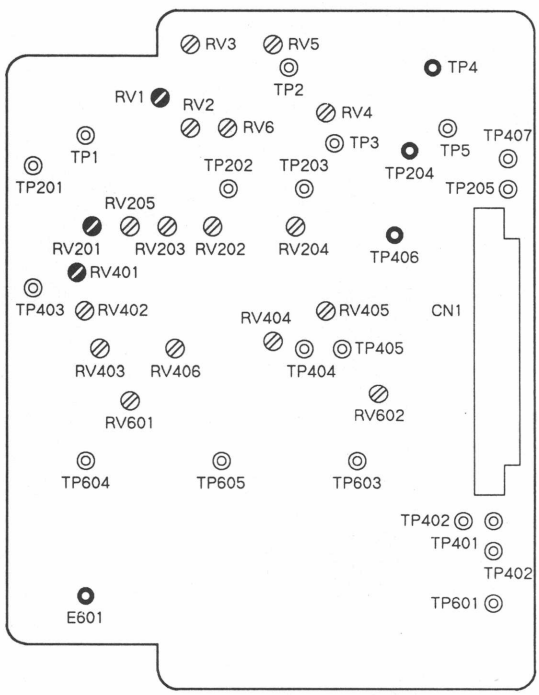
調整手順

- M-ch，B-ch，R-ch毎に下記のように調整します。

VDA-18基板

	測定点 (GND：E601)	調整箇所	規　格
M-ch	TP204	◐RV201	A ＝ 1.50 ± 0.01　V
B-ch	TP406	◐RV401	
R-ch	TP4	◐RV1	





VDA-18 BOARD　(COMPONENT SIDE)

注意事項：調整終了後，GAINスイッチ／HDCR-50を
“0 dB”に戻して下さい。

4-2-34. オートニーピーク調整

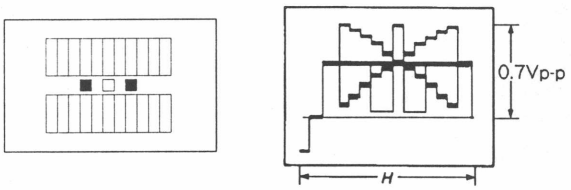
測定器：　　オシロスコープ
基板延長：　　PR-155基板
準備：

- MODEスイッチ／HDCR-50 → CAM
- KNEEスイッチ／HDCR-50 → PRESET
- GAINスイッチ／HDCR-50 → 0dB
- S114 (SYSTEM PRESET ON／OFF)
  ／IF-346基板 → OFF

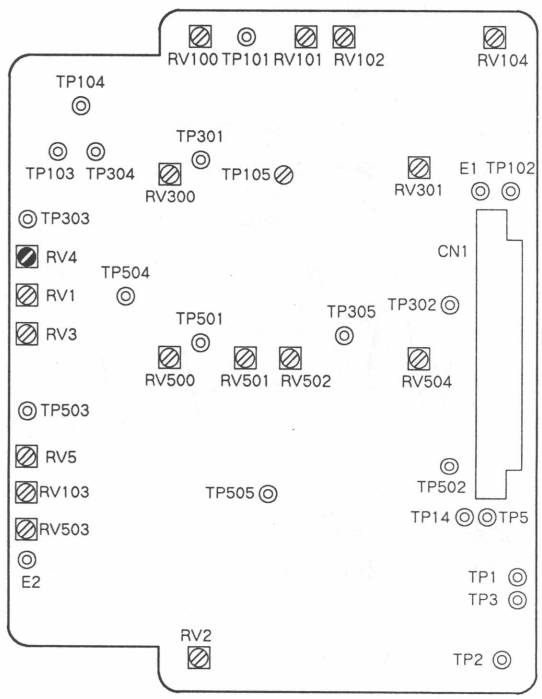
調整手順

1. グレースケールチャートを下記のように撮像します。

モニター画面　　波形モニター



2. VIDEO OUTレベルが0.7 Vになるようにレンズ絞りを調整します。
3. KNEEスイッチ／HDCR-50 → AUTOレンズ絞りをさらに1絞り開けます。
4. 測定点：　　TP202／VDA-18基板
   調整箇所：　　◐RV4／PR-155基板
   規格：　　A = 750 ± 10 mV



PR-155 BOARD (COMPONENT SIDE)

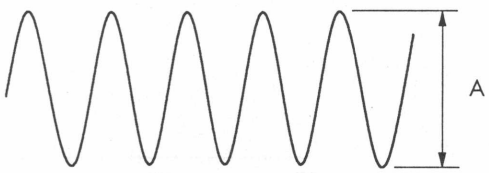
測定器：　オシロスコープ
基板延長：　SG-190基板
準備：
• レンズ絞り　→　クローズ

• ◐RV1 AUDIO MIX ／MA-48基板　→

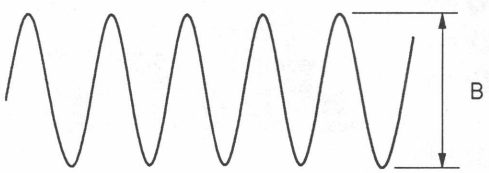
メカニカルセンター
• ◐RV12（SIDE TONE）／SG-190基板　→
反時計方向一杯○
• ◐RV13（RECIEVE LEVEL）／SG-190基板→
反時計方向一杯○
• INCOM MICスイッチ／HDCAリアパネル　→ ON
• S11（MIC SELECT1）／SG-190基板　→ CARBON

調整手順

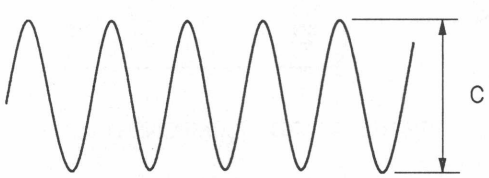
1. HDCAのINCOMジャックに1kHz（2.2 ± 0.1 Vp-p）の正弦波を入力します。
2. 測定点：　Q22のドレイン（GND：E2）／SG-190基板
   調整箇所：　◐RV11／SG-190基板
   規格：　A ＝ 2.0 ± 0.1 Vp-p



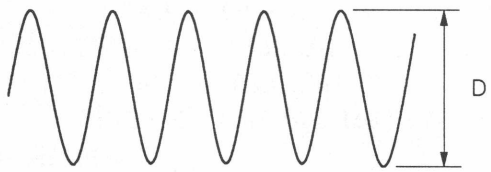
3. 測定点：　46ピン（GND：38ピン）／延長基板
   調整箇所：　◐RV14／SG-190基板
   規格：　B ＝ 最小

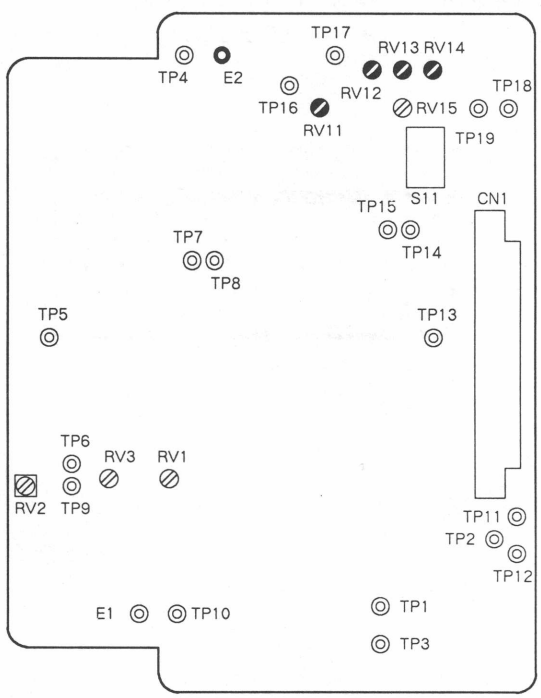


4. 測定点：　46ピン（GND：38ピン）／延長基板
   調整箇所：　◐RV13／SG-190基板
   規格：　C ＝ 220 ± 10 mVp-p



5. 測定点：　46ピン（GND：38ピン）／延長基板
   調整箇所：　◐RV12／SG-190基板
   規格：　D ＝ 50 ± 5 mVp-p

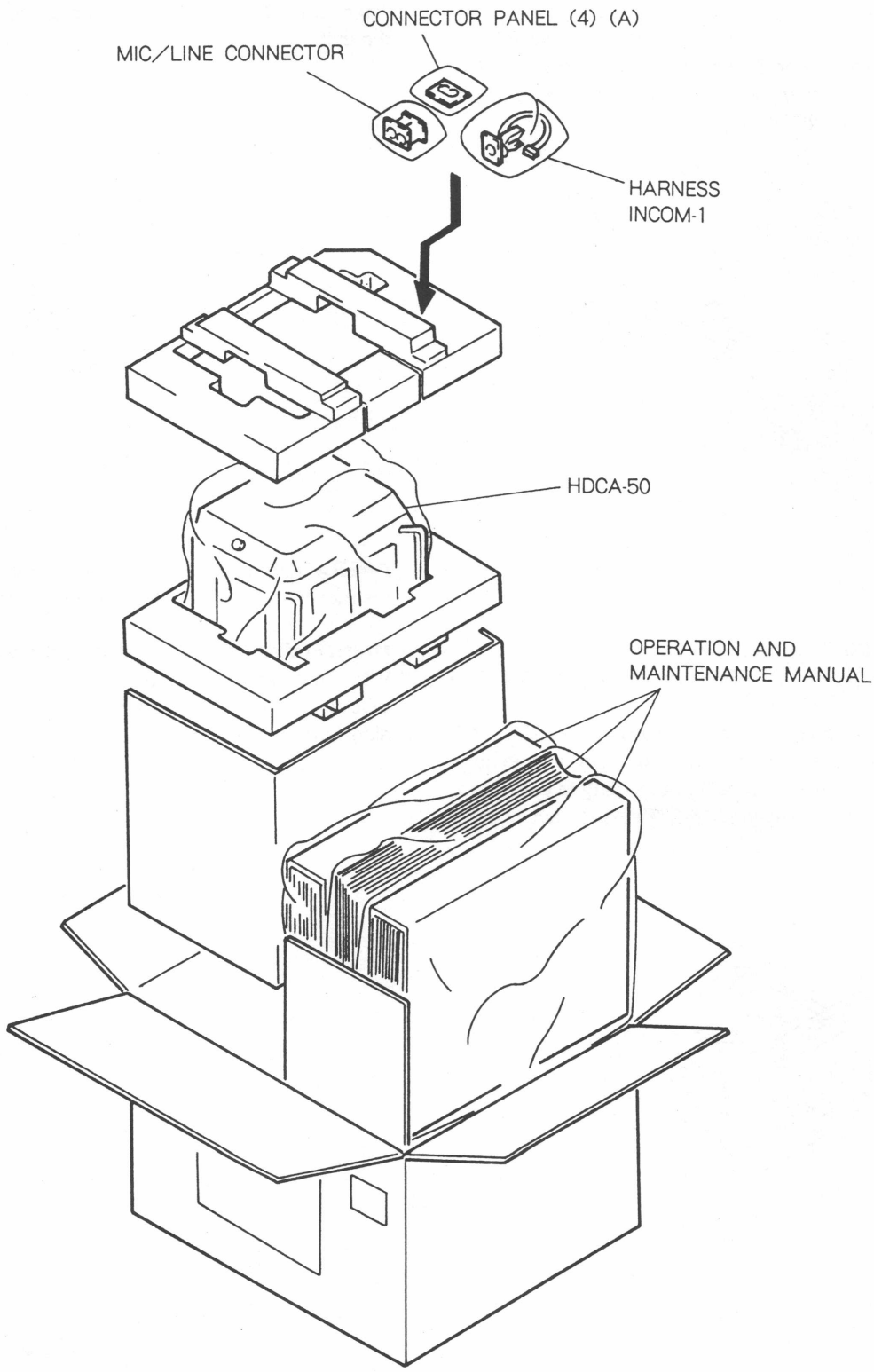




SG-190 BOARD (COMPONENT SIDE)

SECTION 1
INSTALLATION

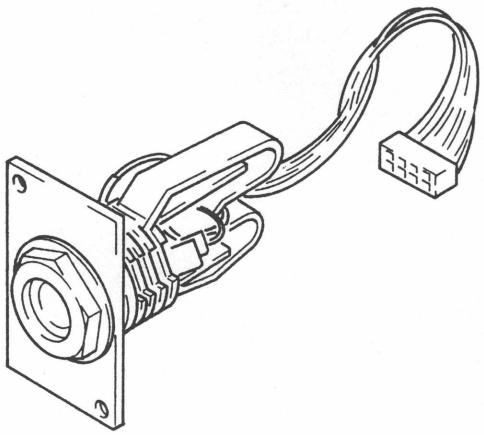
1-1. UNPACKING AND REPACKING



1-2. SUPPLIED ACCESSORIES

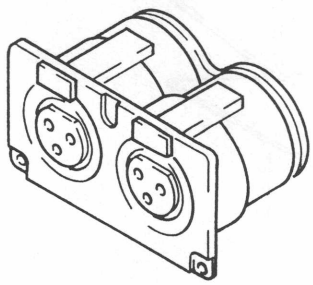
INCOM JACK HARNESS (Sony Parts No. 1-950-217-12)

The XLR type 5P connector is equipped for inter-communication when the unit is shipped from the factory. So, replace the XLR type 5P connector when using the No. 110 type jack. As for replacement, refer to section 1-5-4. "Replacement with INCOM Jack".



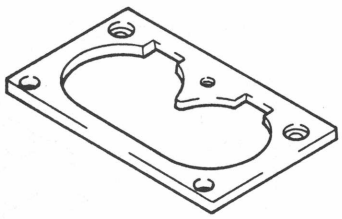
MIC/LINE CONNECTOR ASSY (FEMALE)
(Sony Parts No. A-8270-417-A)

The XLR type 3P male connector is equipped as MIC/LINE connector when the unit is shipped from the factory. Replace with this female connector according to use. As for replacement, refer to section 1-5-5."Replacement of MIC/LINE connector."



CONNECTOR PANEL (Sony Parts No. 3-176-318-01)

Used to install the MIC/LINE connector ASSY (female) to the unit.



OPERATION MANUAL (Japanese/English): ×1 for each
Instruction manual for the stand-alone operation system.

MAINTENANCE MANUAL VOL-1 and VOL-2: ×1 for each
VOL-1 contains the service information for HDCA-50.
VOL-2 contains the information for circuit and block diagrams, and for repair parts.

1-3. CONNECTOR/CABLE

1-3-1. Connector Input/Output Signals

The main connector input/output signals are as follows.

EAR Mini Jack Type
MONITOR BNC Type 75 Ω
VS 1 V p-p
INCOM No. 110 Type Large Jack (Supplied Accessory)
Input Impedance 5 kΩ to 10 kΩ
Output Impedance 300 Ω Unbalanced
Input Level 200 mV p-p (1 kHz)
Output Level Max. 1.7 V p-p (1 kHz)

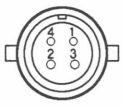
INCOM (5P, FEMALE)

(EXTERNAL VIEW)

Pin No.	SIGNAL	SPECIFICATION
1	INCOM MIC ⊖	–20 dB (CARBON MIC)
2	INCOM MIC ⊕	–60 dB (DYNAMIC MIC)
3	GND	
4	INCOM RECEIVE OUT	max. 0 dB
5		

(0 dB=0.775 V)

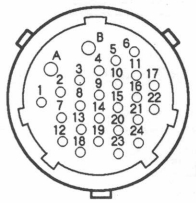
DC OUT (4P, FEMALE)



(EXTERNAL VIEW)

Pin No.	SIGNAL	SPECIFICATION
1	GND	GND for LAMP POWER
2		
3		
4	LAMP POWER OUT	12 V, 0.4 A (max.)

VTR (26P, MALE)

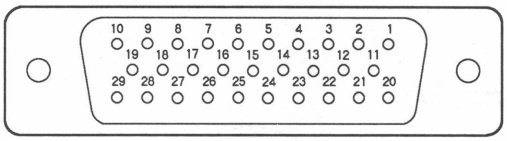


(EXTERNAL VIEW)

Pin No.	SIGNAL	SPECIFICATION
A	UNREG IN	DC+10.6 V to +17 V
B	UNREG GND	
1	GENLOCK IN	Zi=75 Ω
2	GENLOCK GND	0.7 V p-p 0 V dc
3	G/Y (G)	Zo=75 Ω
4	G/Y OUT	0.7 V p-p 0 V dc
5	R/PR OUT	Zo=75 Ω
6	R/PR (G)	0.7 V p-p 0 V dc
7	B/PB OUT	Zo=75 Ω
8	B/PB (G)	0.7 V p-p 0 V dc
9	CH1 MIC OUT (X)	–20 dB
10	CH1 MIC OUT (Y)	Zo=Low Impedance
11	CH1/CH2 MIC GND	(lower than 600 Ω)
12	UNREG (+) SENSE	
13	UNREG (–) SENSE	
14	INCOM LINE IN/OUT	0.5 V p-p
15	CH2 MIC OUT (X)	–20 dB
16	CH2 MIC OUT (Y)	Zo=Low Impedance (lower than 600 Ω)
17		
18	RET VIDEO IN	Zi=75 Ω
19	RET VIDEO GND	0.7 V p-p 0 V dc
20	AUDIO IN	–6 dB Zi=750 Ω /1 kHz
21	RX COMMAND (X) (VTR → CHU)	RS-422
22	RX COMMAND (Y) (VTR → CHU)	
23	TX COMMAND (X) (CHU → VTR)	RS-422
24	TX COMMAND (Y) (CHU → VTR)	

(0 dB=0.775 V)

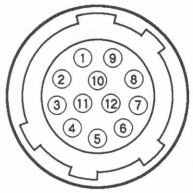
CAMERA (29P, FEMALE)



(EXTERNAL VIEW)

Pin No.	SIGNAL	SPECIFICATION
1	G VIDEO IN (X)	0.7 V p-p 0 V dc 75 Ω ± 1% floating
2	G VIDEO IN (G)	GND for G VIDEO
3	R VIDEO IN (X)	0.7 V p-p 0 V dc 75 Ω ± 1% floating
4	R VIDEO IN (G)	GND for R VIDEO
5	B VIDEO IN (X)	0.7 V p-p 0 V dc 75 Ω ± 1% floating
6	B VIDEO IN (G)	GND for B VIDEO
7	UNREG (+12 V) OUT (G)	GND for UNREG (+12 V)
8	UNREG (+12 V) OUT (G)	
9	UNREG (+12 V) OUT (X)	DC 10.5 to 17 V, 2 A
10	UNREG (+12 V) OUT (X)	
11		
12		
13	+12 V SENSE IN	UNREG +12 V SENSE
14	+12 V (G) SENSE IN	UNREG GND SENSE
15	CHU POWER SAVE $\overline{\text{ON}}$ IN	0 V: POWER SAVE
16	AUX +5 V IN/OUT	
17	AUX -5 V IN/OUT	
18	INCOM (G) IN	GND for INCOM
19	INCOM LINE IN/OUT	0.5 V p-p
20	CHU COMMAND (X)	RS-422
21	CHU COMMAND (Y)	
22	CHU COMMAND (G)	
23	CHU HVD OUT (G)	GND for CHU HVD
24	CHU HVD OUT (X)	negative 0.3 V p-p, 75 Ω ± 1%
25	CHU S DATA OUT	I^2C interface 5 V p-p
26	CHU S CLOCK OUT	I^2C interface 5 V p-p
27	CHU SEPARATE ON IN	+5 V Pull up DC +5 V:SEPARATION DC 0 V:NO SEPARATION
28	CHU VF OUT (X)	0.7 V p-p 0 V dc 75 Ω ± 1% with sync
29	CHU VF OUT (G)	GND for CHU VF

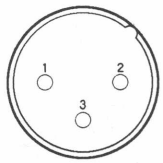
VF (12P, FEMALE)



(EXTERNAL VIEW)

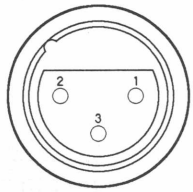
Pin No.	SIGNAL	SPECIFICATION
1	BATT IND OUT	DC +5 V: LIGHT UP R0=220 Ω
2	UNREG (+12 V) OUT	DC 10.5 to 17 V, 2 A
3	VF VIDEO OUT (G)	GND for VF VIDEO
4	VF VIDEO OUT (X)	VS 1 V p-p, 75 Ω termination DC ± 200 mV
5	PEAKING ON/$\overline{\text{OFF}}$ IN	Camera DC 0 V : aperture OFF Camera DC +5 V or HIGH : aperture ON
6		
7	RED TALLY OUT	DC +5 V: LIGHT UP, Ro=220 Ω
8	NON-NORMAL OUT	DC +5 V: LIGHT UP, Ro=220 Ω
9		
10	UNREG (GND) OUT	GND for UNREG +12 V
11	VTR SAVE OUT	DC +5 V: LIGHT UP, Ro=220 Ω
12	GREEN TALLY OUT	DC +5 V: LIGHT UP, Ro=220 Ω

MIC/LINE CH1/CH2
(3P, MALE)



(EXTERNAL VIEW)

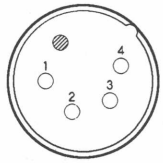
(3P, FEMALE) (supplied)



(EXTERNAL VIEW)

Pin No.	SIGNAL	SPECIFICATION
1	MIC/LINE IN (G)	Zi=5 k Ω
2	MIC/LINE IN (X)	
3	MIC/LINE IN (Y)	

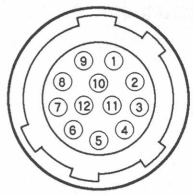
DC IN (4P, MALE)



(EXTERNAL VIEW)

Pin No.	SIGNAL	SPECIFICATION
1	GND	GND for DC (+)
2	(SPARE)	
3	(SPARE)	
4	DC (+) IN	DC10.6 to 17.0 V

REMOTE (12P, FEMALE)



(EXTERNAL VIEW)

Pin No.	SIGNAL	SPECIFICATION
1	FM CHU COMMAND OUT	5 V p-p
2	UNREG	DC +10.5 V to 17 V
3	POWER $\overline{\text{ON}}$	GND
4	SCK	I^2C interface 5 V p-p
5	INCOM GND	GND for INCOM
6	INCOM IN/OUT	0.5 V p-p
7	FM VTR COMMAND OUT	5 V p-p
8	REMOTE $\overline{\text{ACT}}$	GND
9	SDA	I^2C interface 5 V p-p
10	UNREG GND	GND for UNREG
11	TO CHU COMMAND IN	5 V p-p
12	TO VTR COMMAND IN	5 V p-p

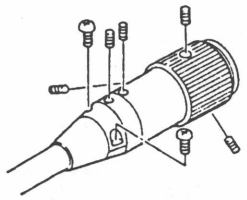
1-3-2. Connector

Connection during installation or service should be made with the connector specified in the following list or equivalent parts.

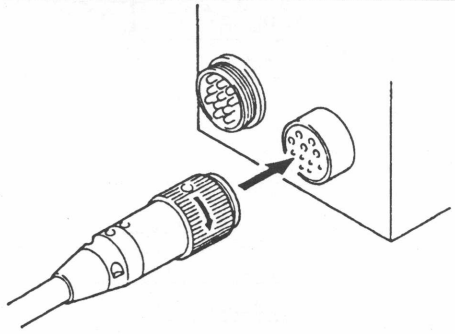
Connector function	Parts No. and name of connector with cable
INCOM (5P, FEMALE)	9-910-999-31 PLUG 5P, MALE CANNON XLR-5-12C or equivalent
MONITOR (BNC)	1-508-898-00 PLUG, BNC or UGC (B-B) COAXIAL Cable assembly (optional) UGC-0.5 (0.5m/1.6 feet) UGC-1 (1m/3.2 feet) UGC-2 (2m/6.4 feet) UGC-5 (5m/16.4 feet) UGC-10 (10m/32.8 feet) UGC-25 (25m/82 feet)
VTR (26P, MALE)	1-564-184-31 HDCZ PLUG, 26P, FEMALE JAE SRCB06A21-26S-(13)-K513 or equivalent HDCZ cable assembly HDCZ-10 (10m/32.8 feet) HDCZ-25 (25m/82 feet)
VF (12P, FEMALE)	1-568-233-11 CONNECTOR, ROUND TYPE, 12P MALE 1-574-495-11 CABLE ASSY (Supplied with HKCF-750) 1-574-495-21 CABLE ASSY (Supplied with HDVF-30)
REMOTE (12P, FEMALE)	1-568-233-11 CONNECTOR, ROUND TYPE, 12P MALE 1-574-495-41 CABLE ASSY (Supplied with HDCR-350) 1-574-495-31 CABLE ASSY (Supplied with HDCR-50)
MIC/LINE CH1/CH2 (3P, MALE)	1-508-083-11 PLUG, 3P FEMALE or CANNON XLR-3-11C or equivalent
MIC/LINE CH1/CH2 (3P, FEMALE) (supplied)	1-508-084-11 PLUG, 3P MALE or CANNON XLR-3-12C or equivalent
DC IN (4P, MALE)	1-508-362-11 PLUG, 4P FEMALE or CANNON XLR-4-11C or equivalent

1-3-3. Removal of the HDCZ Connectors

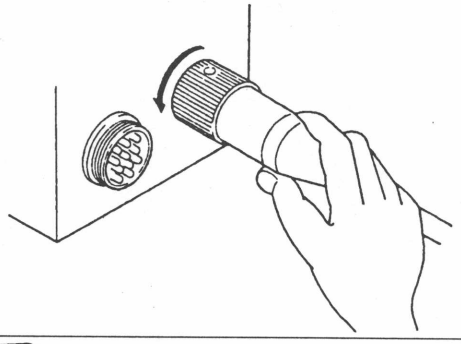
Step 1.
Remove the setscrews.



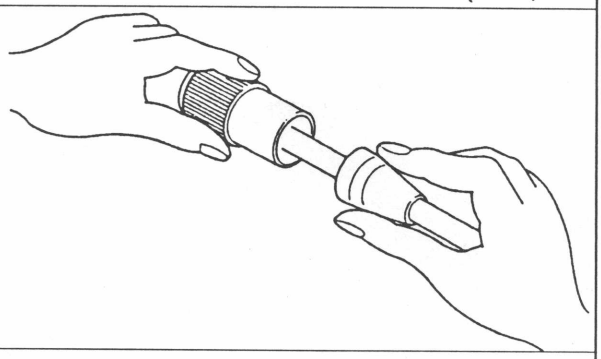
Step 2.
Connect the connector to
the camera adaptor or signal distributor to fix.



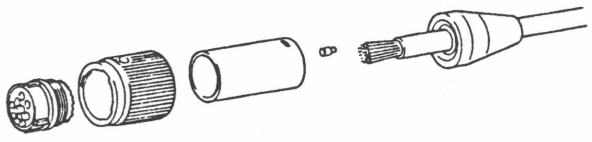
Step 3.
Rotate the HDCZ connector
counterclockwise and loosen it.



Step 4.
The connector can be manually removed.

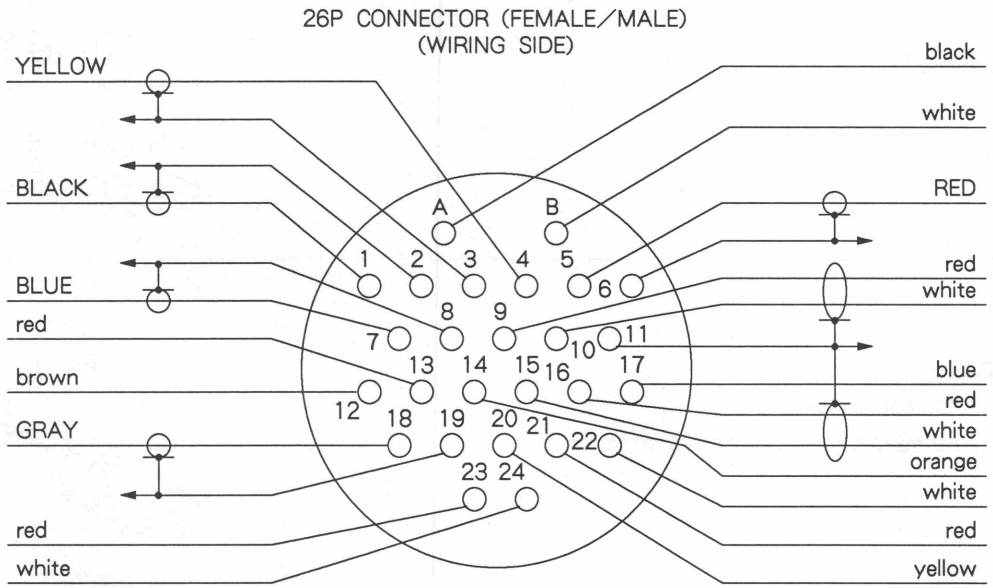


Step 5.
The connector is disassembled as
shown in the right figure.



1-3-4. Cable Wiring

HDCZ Cable (wiring diagram)



1-4. POWER SUPPLY

Power source DC17V
Power consumption 14W

The power is supplied from HDCD-50 via HDCZ camera cable, or from an external power supply to the HDCA-50.

1-5. INSTALLATION

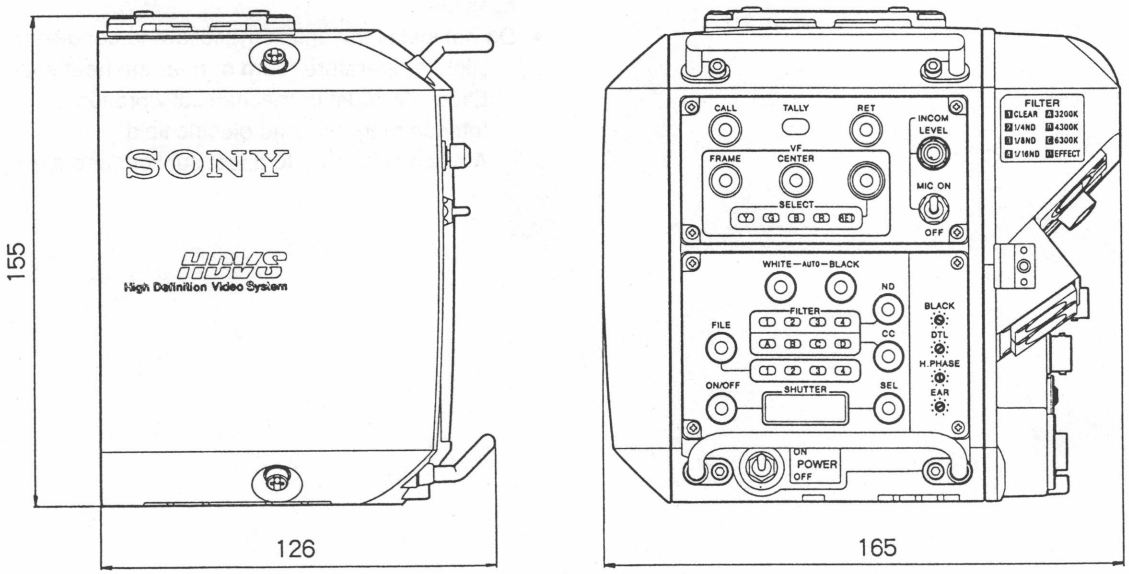
1-5-1. Installation Environment

Operating temperature : 0 ℃ to 40 ℃
Storage temperature : –20 ℃ to +60 ℃
Humidity : 20 % to 80 %

- Install the unit in a location as dry and well-ventilated as possible.
- Do not install the unit in the following conditions.
  High temperature room or near the heat source
  Excessive dust or mechanical vibration
  Intense magnetic and electric field
  A place subjected to direct sunlight and strong light

1-5-2. Dimensions

Unit: mm

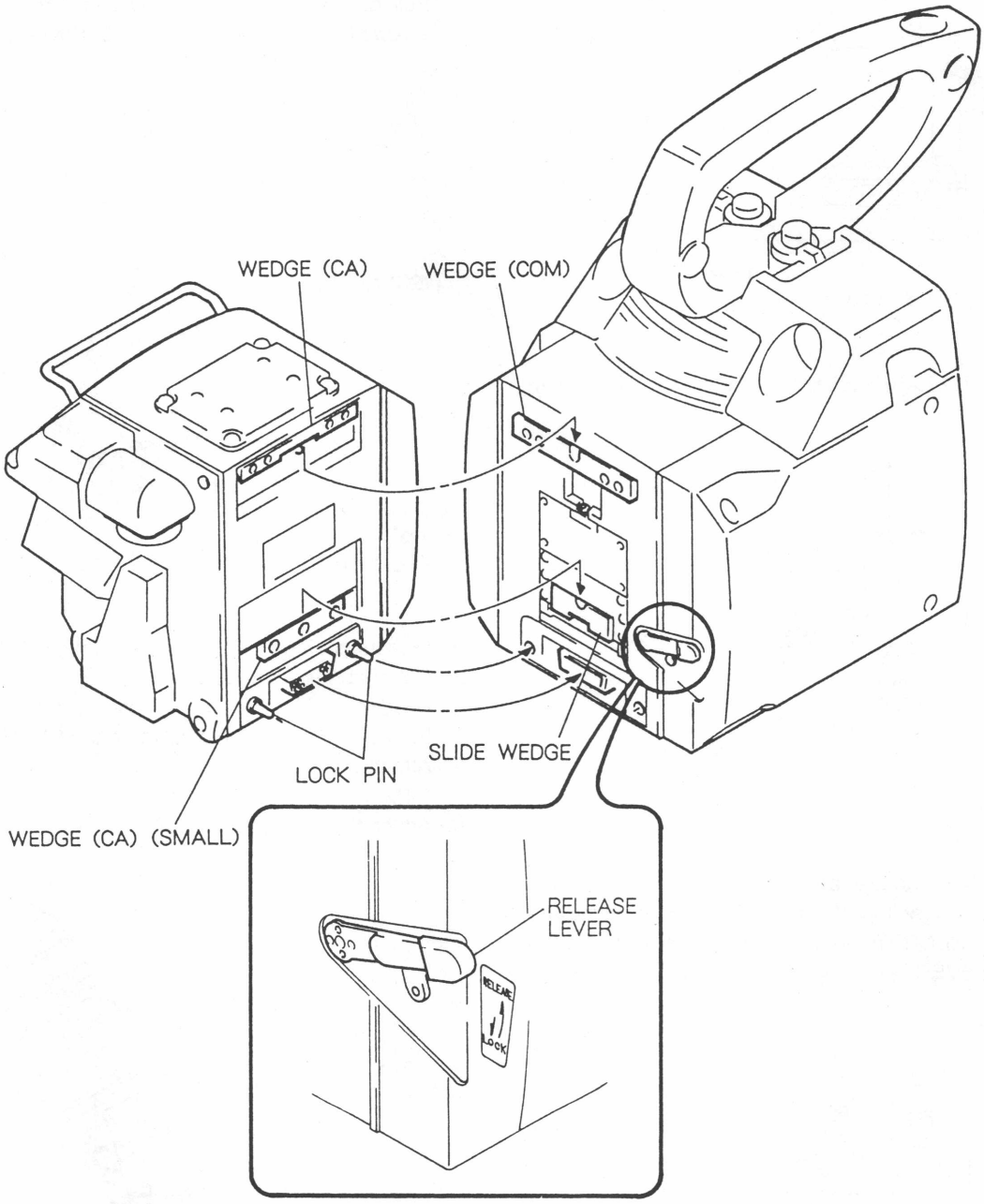


(UNIT: mm, including the most projected potion)

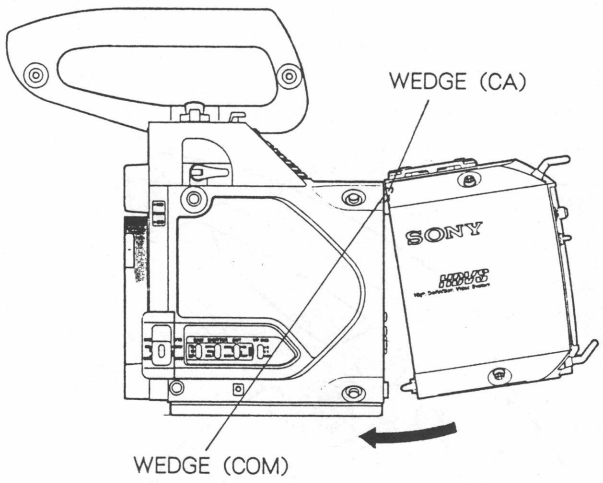
1-5-3. Connection to Camera

- Connect the HDC-500 with HDCA-50. The connecting point is shown in the below figure.

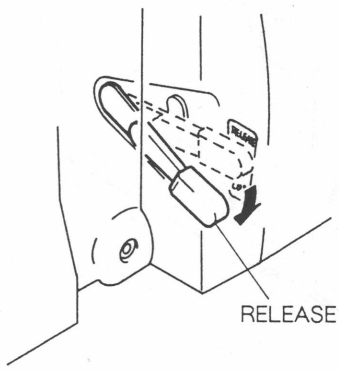
① Make sure that the RELEASE LEVER is in the release position.



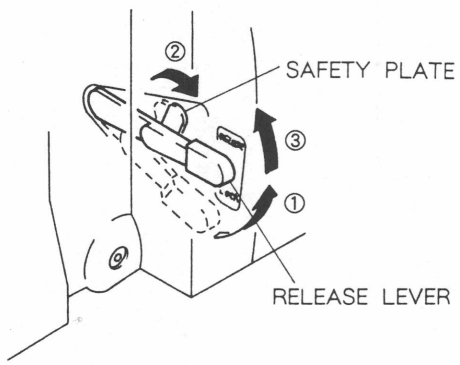
② Hook the WEDGE (CA) on the WEDGE (COM) to attach in the arrow direction. The RELEASE LEVER is prelocked when you hear a click.



③ Move the RELEASE LEVER in the arrow direction to lock.



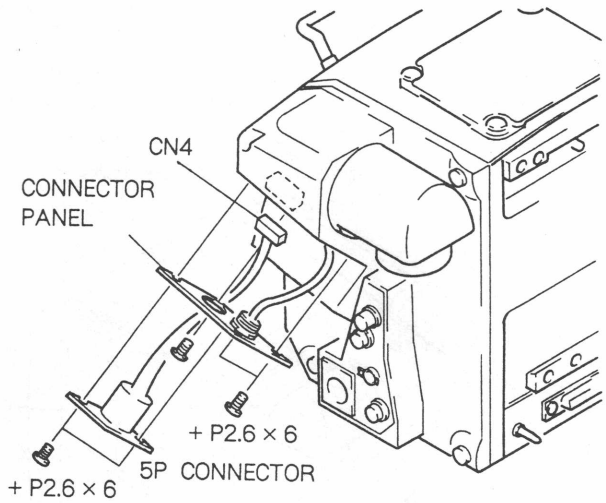
* To detach the camera adaptor, move the RELEASE LEVER in the direction of arrow ①, then while moving the SAFETY PLATE in the direction of arrow ② move the RELEASE LEVER in the direction of arrow ③.



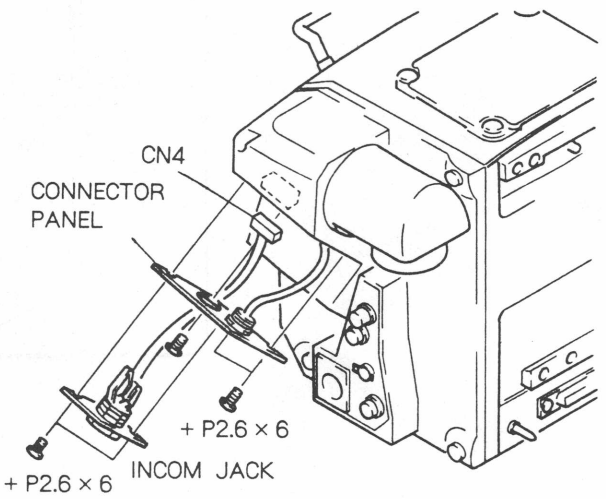
1-5-4. Replacement with INCOM JACK

The XLR type INCOM panel is equipped when the unit is shipped from the factory. When using the 110 type INCOM JACK (supplied), perform replacement as follows.

1. Remove the two screws (+P2.6×6) and disconnect the 5P CONNECTOR.
2. Pull out the 5P CONNECTOR and remove the three screws (+P2.6×6) securing the CONNECTOR PANEL.



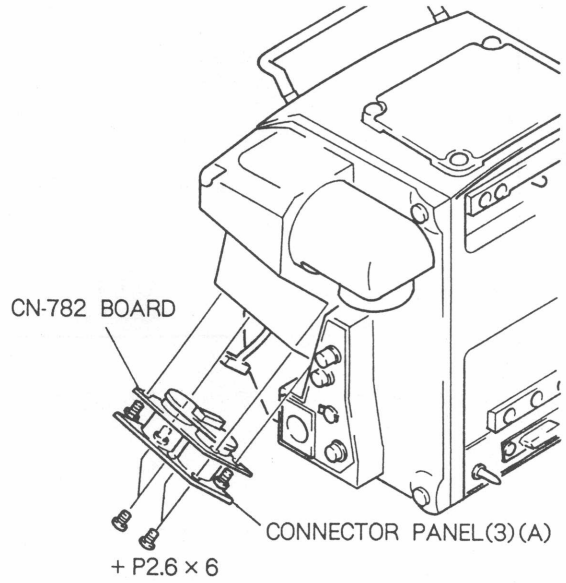
3. Disconnect the connector CN4 from the CN-784 board.
4. Connect the connector extending from the supplied INCOM JACK through a hole of the CONNECTOR PANEL to the connector CN4 on the CN-784 board.
5. Attach the CONNECTOR PANEL with the three screws (+P2.6×6).
6. Attach the INCOM JACK with the two screws (+P2.6×6).



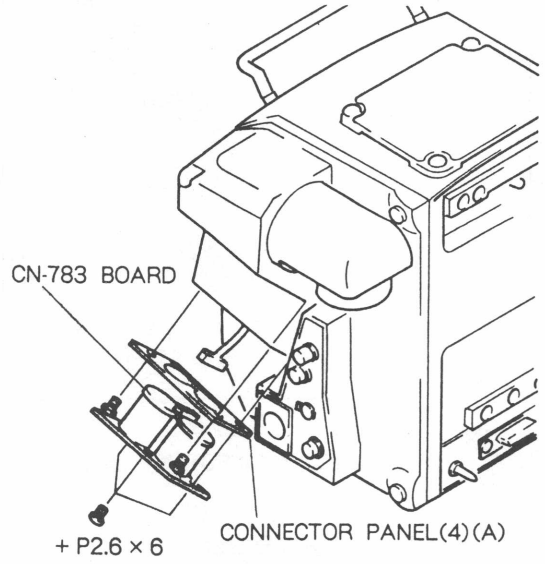
1-5-5. Replacement of MIC/LINE Connector

The XLR type 3P male connector is equipped when the unit is shipped from factory. When using supplied female connector, perform replacement as follows.

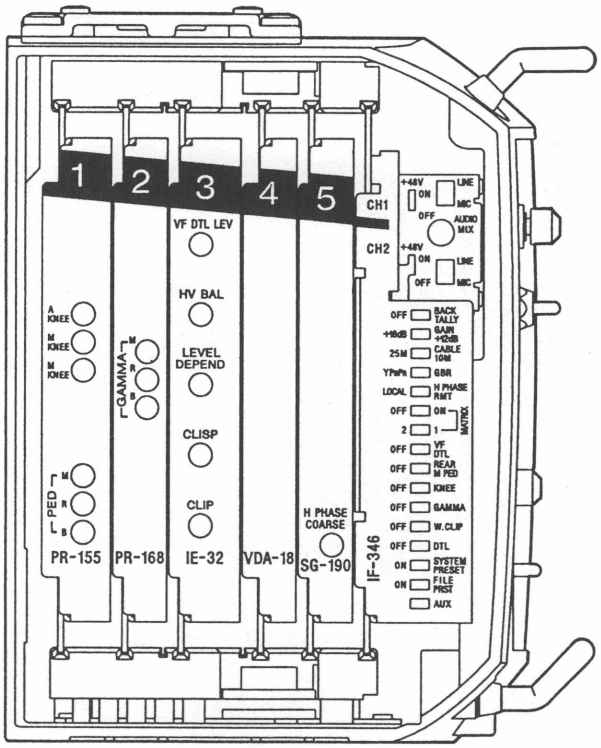
1. Remove the four screws (+P2.6×6) securing the 3P male connector.
2. Pull out the connector slowly and remove the three screws (+P2.6×6) securing the CONNECTOR PANEL (3)(A).
3. Disconnect the connector CN78 from the CN-782 board.

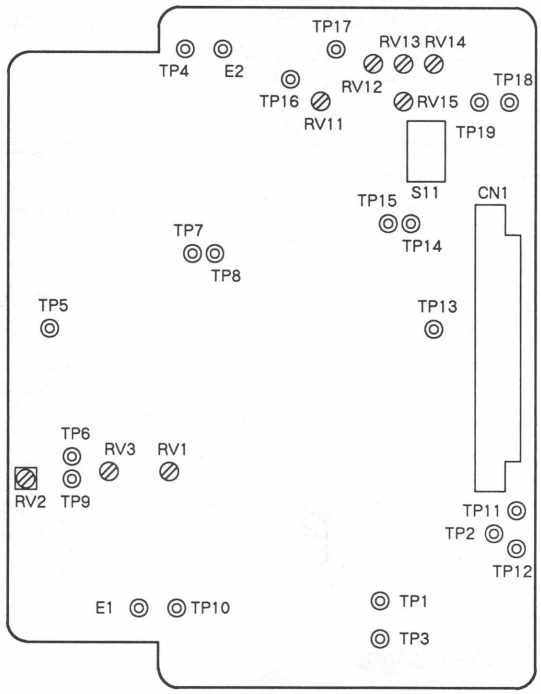


4. Connect the connector CN78 on the CN-783 board in place.
5. Attach the CONNECTOR PANEL (4)(A) with the two screws (+P2.6×6).
6. Attach the supplied female connector to the unit with the three screws (+P2.6×6).



1-6. SWITCH SETTINGS ON THE BOARD





SG-190 BOARD (COMPONENT SIDE)

SG-190 board

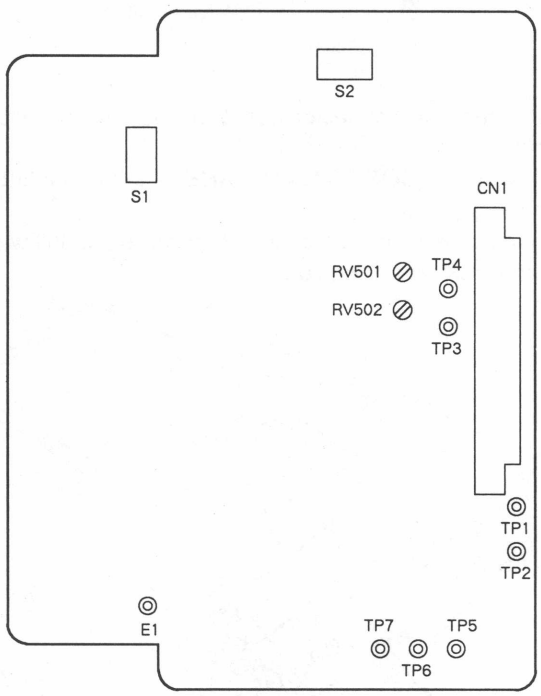
- S1 (INCOM-MIC)
  Set the "DYNAMIC" or "CARBON" according to the type of the head set microphone.
  They are factory-set to "CARBON".

IF-346 board

- S1 (CPU RESET)
  When pressing the switch, the CPU is reset.

- S2 (MODE SELECT)

	ON	OFF	NORMAL POSITION
S2-1	CHU TEST PULSE ENABLE	NORMAL	OFF
S2-2	REFERENCE TEST PULSE ENABLE	NORMAL	OFF
S2-3	—	—	—
S2-4	—	—	—

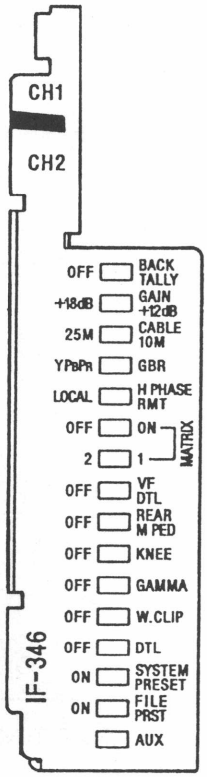


IF-346 BOARD (COMPONENT SIDE)

- S101 (BACK TALLY ON/OFF)
  Turning ON this switch causes TALLY lamp on the rear panel to light on according to the RED TALLY signal or a call from the CCU. The TALLY lamp does not light on if turned off.
  This switch is factory-set to ON.

- S102 (GAIN +12dB/+18dB)
  The gains of 0/+6/+12dB can be selected with the GAIN UP switch of the camera head. By setting this switch to 18dB, the video output level can be raised by +18dB at the +12dB position of GAIN UP switch.
  This switch is factory-set to +12dB.

- S103 (CABLE 25M/10M)
  When extending between the HDC-500 and HDCA-50 with a special cable having a length of more than 25m, set this switch to 25M. 25-meter cable compensation will be performed. When extending with a 10m long cable, set it to 10M.
  This switch is factory-set to 10M.



IF-346 BOARD
(PANEL SIDE)

- S104 (Y P_B P_R/GBR)
  This switch is used to change GBR, YP_B and P_R outputs.
  The switch is factory-set to GBR.

- S105 (H PHASE LOCAL/REMOTE)
  If a fine adjustment for H PHASE is performed using the H PHASE control on the rear panel, set this switch to LOCAL. If using the HDCD-50, set it to REMOTE.
  The switch is factory-set to REMOTE.

- S106 (MATRIX ON/OFF)
  When set to ON, the linear matrix circuit on the MX-33 board works.
  This switch is factory-set to ON.

- S107 (MATRIX 1/2)
  This switch selects either MATRIX 1 or MATRIX 2.
  MATRIX 1: Matrix board to apply SMPTE 240M specification to the HDC-500.
  MATRIX 2: Matrix board to apply CCIR R.709 specification to the HDC-500.
  The switch is factory-set to 1.

- S108 (VF DTL ON/OFF)
  When set to ON, the vertical contour of image on the VF can be enhanced. The PEAKING switch on the VF can switch over the VF DTL with the switch S108 set to ON.
  The switch is factory-set to ON.

- S109 (REAR M PED ON/OFF)
  When performing M BLACK adjustment using the BLACK control on the rear panel, set this switch to ON.
  The switch is factory-set to ON.

- S110 (KNEE ON/OFF)
  When set to ON, the knee circuit on the PR-155 board works. Set it to OFF during adjustment.
  The switch is factory-set to ON.

- S111 (GAMMA ON/OFF)
  When set to ON, the GAMMA circuit on the PR-168 board works. Set it to OFF during adjustment.
  The switch is factory-set to ON.

- S112 (W CLIP ON/OFF)
  When set to ON, the W CLIP circuit on the VDA-18 board works.
  The switch is factory-set to ON.

- S113 (DTL ON/OFF)
  When set to ON, the DETAIL circuit on the IE-32 board works.
  The switch is factory-set to ON.

- S114 (SYSTEM PRESET ON/OFF)
  Set this switch to ON when the digital to analog value controlled by the CPU is all preset. Mainly set it to ON during adjustment.
  Normally set it to OFF.

- S115 (FILE PRESET ON/OFF)
  Set this switch to ON when the digital to analog value except the WHITE GAIN and PEDESTAL values which is controlled by the CPU is all preset.
  Mainly set it to ON during the flare adjustment.
  Normally set it to OFF.

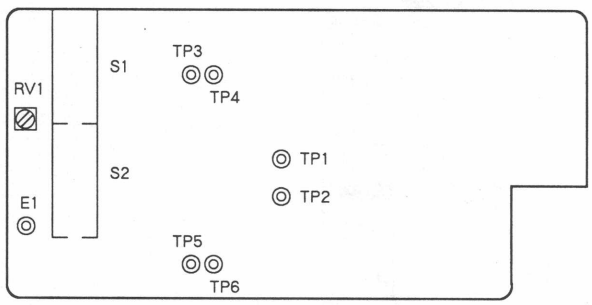
- S116 (AUX)
  This is an auxiliary switch.

MA-48 board

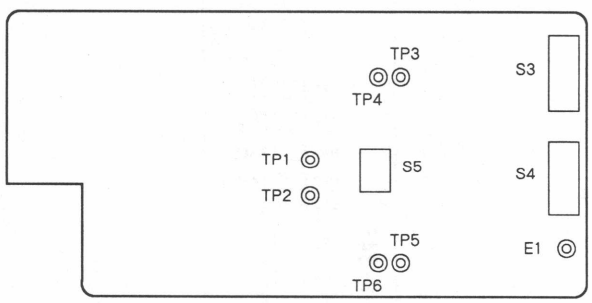
- S1 (CH1 MIC/LINE)
- S2 (CH2 MIC/LINE)
  Set this switch to MIC when an external microphone is connected to the MIC/LINE connector on the left side plate. Set it to LINE when the MIC/LINE connector is used as a LINE input.
  CH1 and CH2 can be independently set.
  These switches are factory-set to MIC.

- S3 (CH1 MIC +48V ON/OFF)
- S4 (CH2 MIC +48V ON/OFF)
  Set this switch to ON when an external microphone which operates with an external power supply system (phantom power system: +48V) is connected to the MIC/LINE connector. The switch is factory-set to OFF.

- S5 (MIC GAIN –40dB/–60dB)
  Set this switch according to the output level of an external microphone to be connected.
  The switch is factory-set to –60dB.



MA-48 BOARD (COMPONENT SIDE)

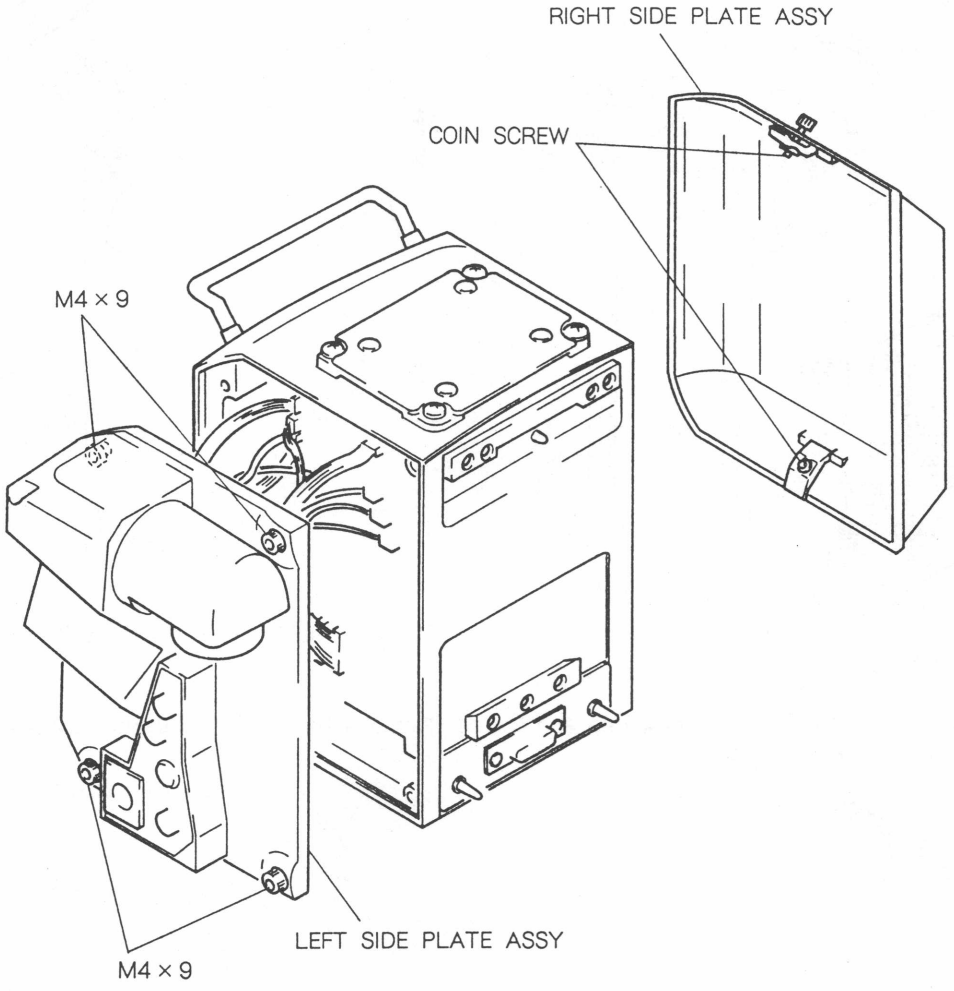


MA-48 BOARD (SOLDERING SIDE)

SECTION 2
REPLACEMENT OF MAIN PARTS

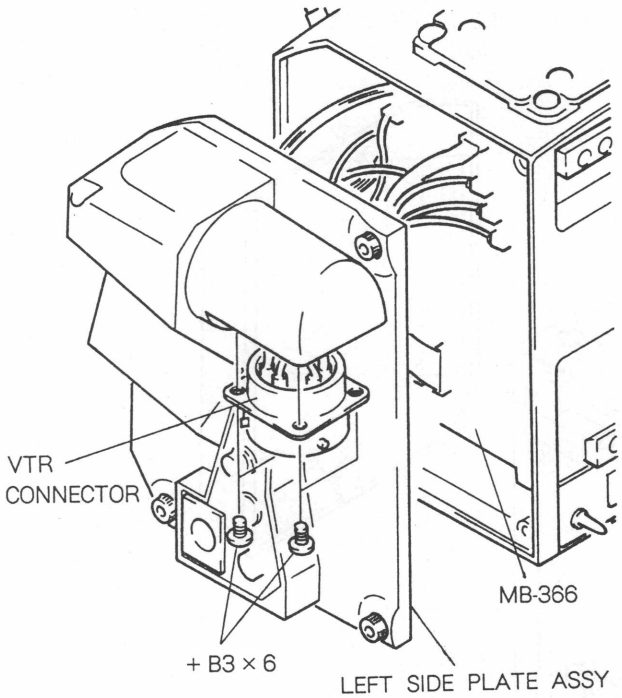
2-1. CABINET REMOVAL

1. Loosen the two COIN SCREWs and remove the RIGHT SIDE PLATE ASSY.
2. Loosen the screws (M4×9) and remove the LEFT SIDE PLATE ASSY.



2-2. REPLACEMENT OF VTR CONNECTOR

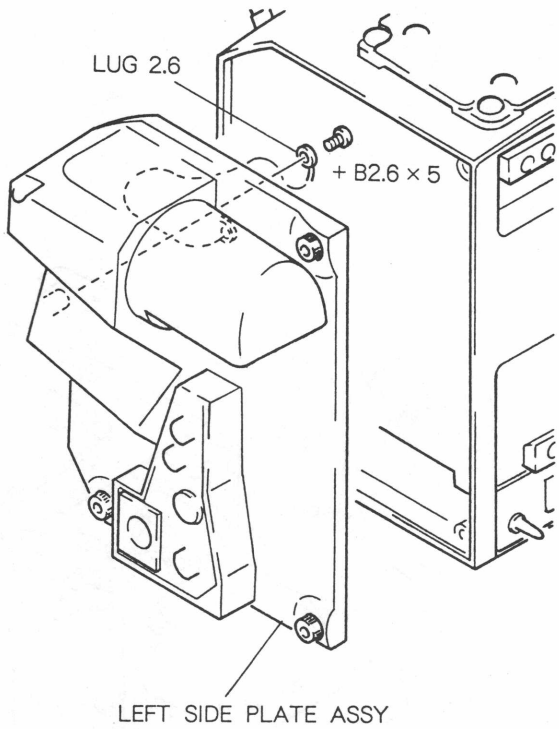
1. Remove the LEFT SIDE PLATE ASSY, referring to section 2-1. "CABINET REMOVAL".
2. Disconnect the eight connectors (CN3, CN10, CN27, CN32, CN33, CN34, CN36 and CN37) from the MB-366 board.
3. Release the harness from the wire holder in the back side of the LEFT SIDE PLATE ASSY.
4. Remove the four screws (+B3×6) securing the VTR CONNECTOR and carefully pull out the VTR CONNECTOR with harnesses attached.



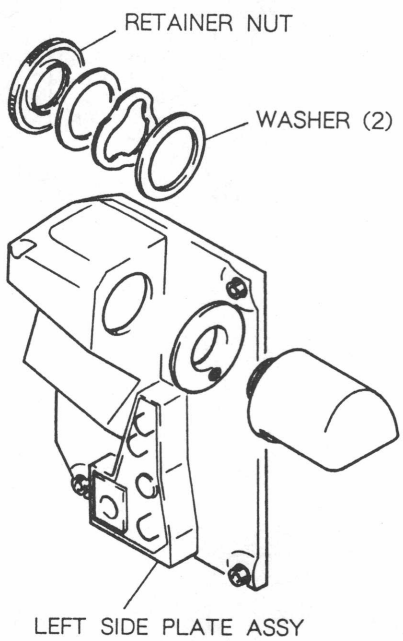
5. Replace the VTR CONNECTOR with a new one and install it in the reverse order of removal.

2-3. REPLACEMENT OF CONNECTOR BOX

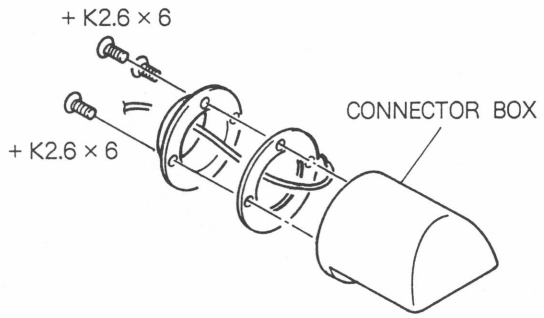
1. Remove the VTR CONNECTOR, referring to section 2-2. "REPLACEMENT OF VTR CONNECTOR".
2. Disconnect the ten connectors (CN2, CN4, CN5, CN8, CN9, CN11, CN12, CN15, CN28 and CN35) from the MB-366 board.
3. Remove the screw (+B2.6×5) securing the lug terminal.



4. Remove the retainer nut using a special spanner.



5. Remove the three screws (+K2.6×6) and remove the CONNECTOR BOX.



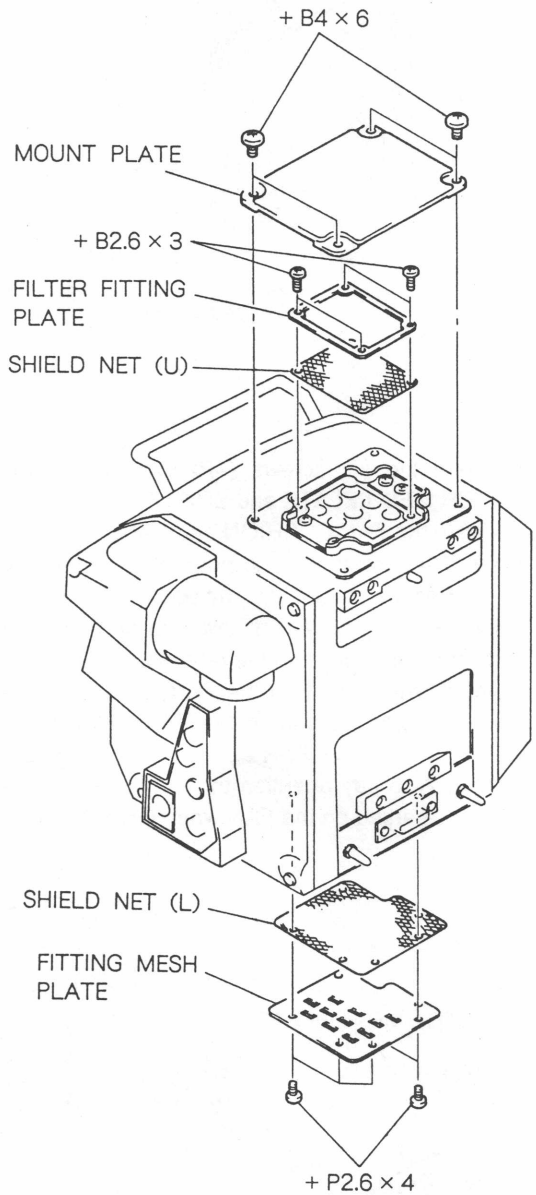
6. Replace the CONNECTOR BOX with a new one and install it in the reverse order of removal.

Note 1: Be careful of mis-tightening of the washer (2) and the retainer nut when installing.

Note 2: Be sure to apply a locking fluid to the retainer nut when installing.

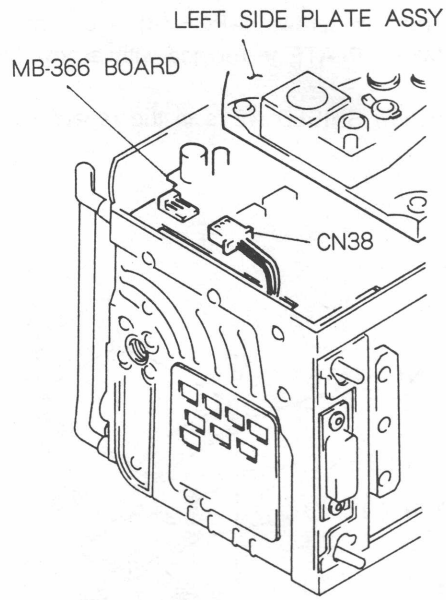
2-4. REPLACEMENT OF SHIELD NETS (U)/(L)

1. Remove the four screws (+B4×6) and remove the MOUNT PLATE.
2. Remove the four screws (+B2.6×3) and remove the FILTER FITTING PLATE to replace with a new SHIELD NET (U).
3. Remove the six screws (+P2.6×4) and remove the FILTER MESH PLATE to replace with a new SHIELD NET (L).
4. Install the new SHIELD NETs in the reverse order of removal.

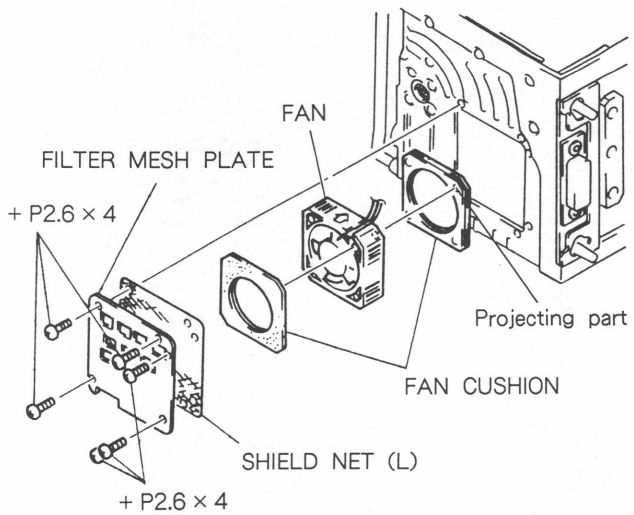


2-5. REPLACEMENT OF FAN

1. Remove the LEFT SIDE PLATE ASSY, referring to section 2-1. "CABINET REMOVAL".
2. Disconnect the connector CN38 from the MB-366 board.

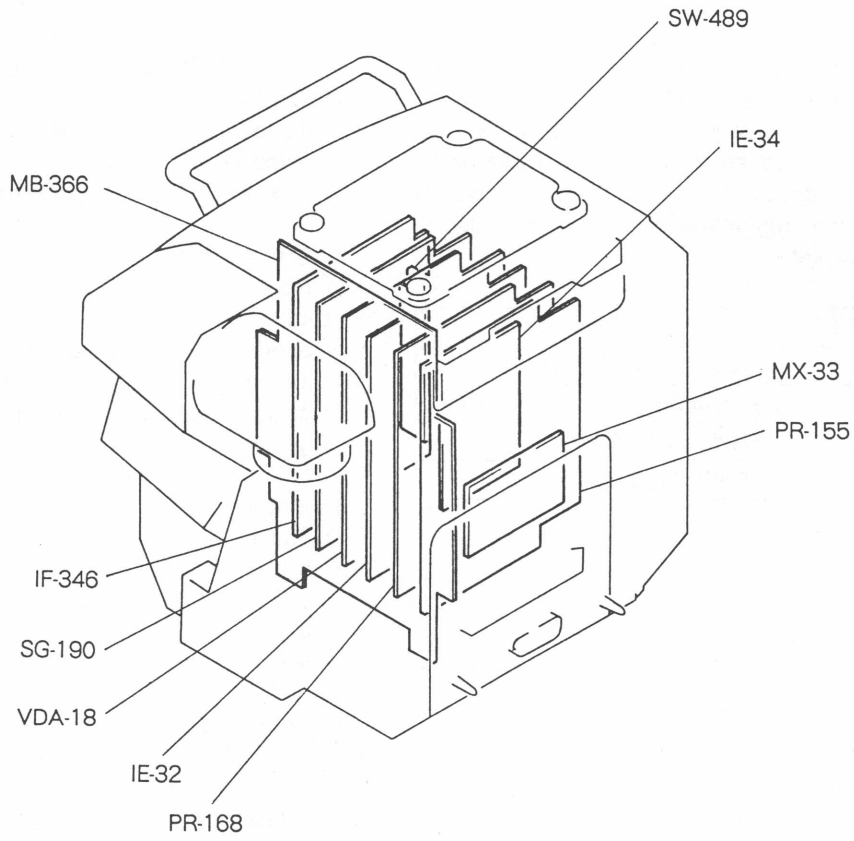


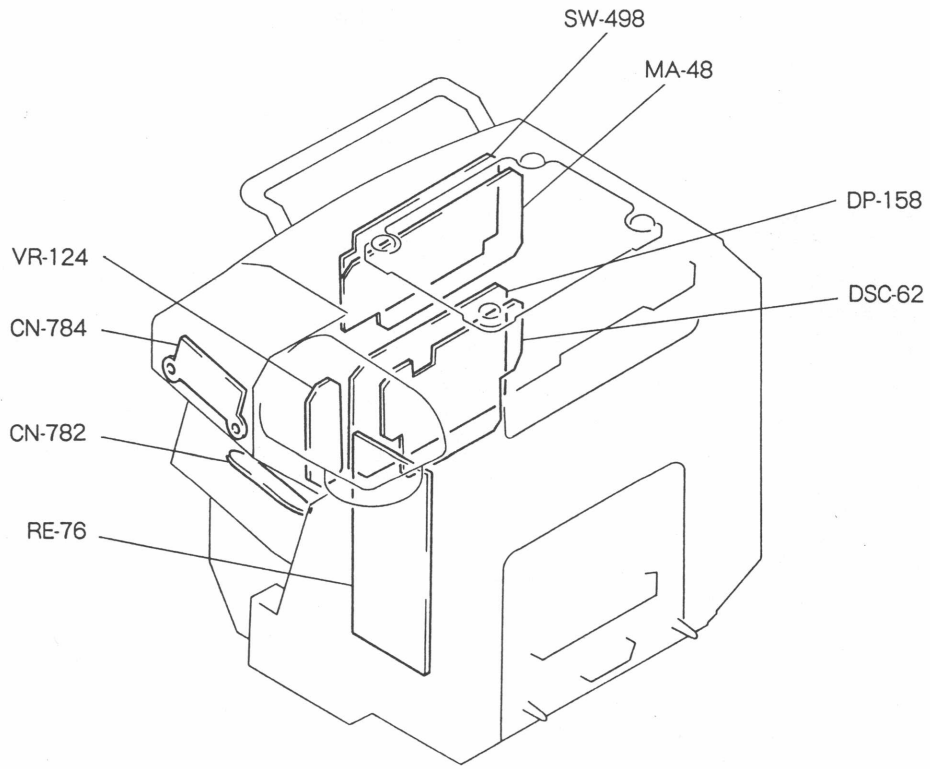
3. Remove the six screws (+P2.6×4) and remove the FILTER MESH PLATE and SHIELD NET (L).
4. Remove the FAN CUSHION and FAN.
   Note: When removing, do not make the harness of the FAN be caught with the board, etc.
5. Replace the FAN with a new one and install the new FAN in reverse order to the removal.
   Note 1: When installing the FAN, be sure to insert the projecting part of the FAN CUSHION into the hole of the FAN as shown in the figure.
   Note 2: Also pay attention to the direction of the arrow marked on the FAN when installing.



SECTION 3
SERVICE INFORMATION

3-1. BOARD LAYOUT





3-2. NOTE ON MAINTENANCE SERVICES

3-2-1. PROM, PLD

PROM and PLD on the PC board have a suffix to their original designation respectively, which is shown in bold-face type in the following table. This suffix may change according to impovement of IC. Never use an IC having no suffix to its original designation, because its memory has not been programmed. Each IC is mounted to the PC board via socket.

BOARD	Ref. No	PROMIC
DSC-62	IC12	27C512-**DSC62-V1.0**
IF-346	IC7	9800-**IF346-V1.0**
	IC8	27C512-**PADP-V1.0**
SG-190	IC19	5128-**SG190-V1.0**

3-2-2. Note on Replacement Parts

1. Safety Related on Components Warning
   Components identified by shading marked with ⚠ on the schematic diagrams, exploded views and electrical spare parts list are critical to safe operation. Replace these components with Sony Parts whose parts numbers appear as shown in this manual or in service manual supplements published by Sony.

2. Standardization of Parts
   Replace Parts that are supplied from Sony Parts Center can sometimes have different shape and external appearance than what are actually used in equipment. This is due to "accommodating the improved parts and/or engineering changes" or "standardization of genuine parts."

3. Stocked of Parts
   The parts marked with "S" in the SP column of the exploded views and electrical spare parts list are normally required for routine service work. Order for parts marked with "O" will be proceed, but allow for additional delivery time.

4. Units of Capacitors, Inductors, and Resistors
   The following units are omitted in the schematic diagrams, exploded views, and electrical parts lists unless otherwise specified;
   Capacitor : μF
   Inductor : μH
   Resistor : Ω

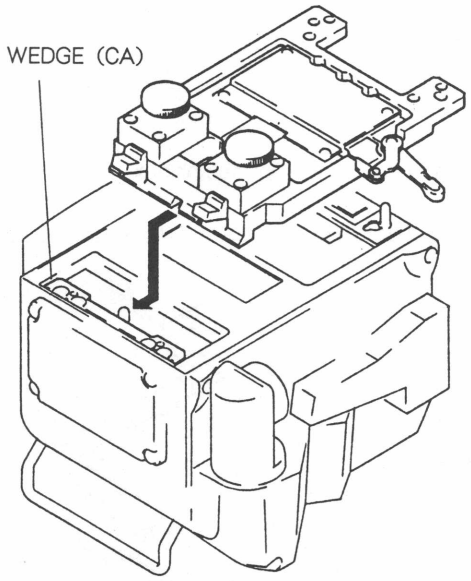
3-3. USE OF POSITIONING TOOL

The CN plate and the wedge (small) are installed by the special tool for maintaining the accuracy of the connecting portions. Never loosen or remove screws except when replacing the CN plate and the wedge (small). The use of the tool is described below.

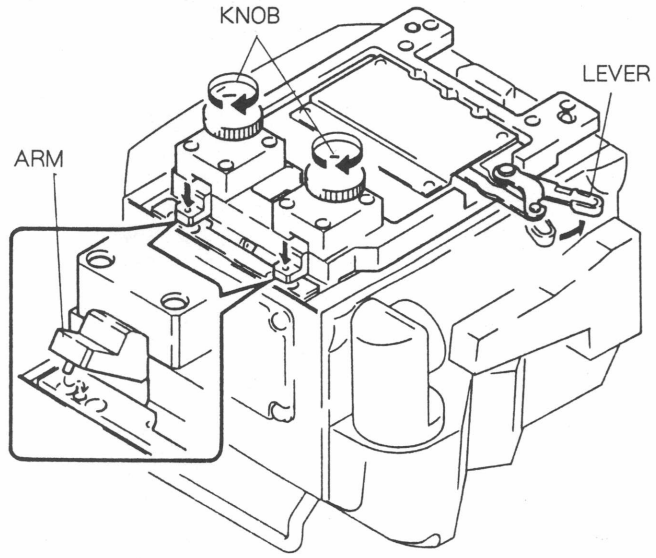
Positioning Tool (B) Sony Parts No. J-6391-220-A

Installation

1. Engage the wedge (CA) with the wedge of the tool.



2. Insert a projecting pin of the arm into the hole of wedge (CA) and turn the knob clockwise to fix.
   Move the lever in the direction of arrow to be locked.



Note: When the positioning tool is attached, the lever might not be locked or the tool might not be attached depending on the tightening rate of the setscrew C. (Fig.1) To solve this problem, adjust the setscrew C in advance so that the lever is locked.

3-3-1. Use of the Tool for Wedge (small) Replacement

1. After replacing the wedge (small), temporarily fasten the screws fixing the wedge (small) to the unit.
2. Attach the positioning tool referring to the installation procedures.
3. Tighten the three screws of portion A. (Fig. 1)

3-3-2. Use of the Tool for CN Plate Replacement

1. After replacing the CN plate, temporarily fasten the screws fixing the CN plate to the unit.
2. Attach the positioning tool referring to the installation procedures.
3. Tighten the four screws of portion B. (Fig. 1)

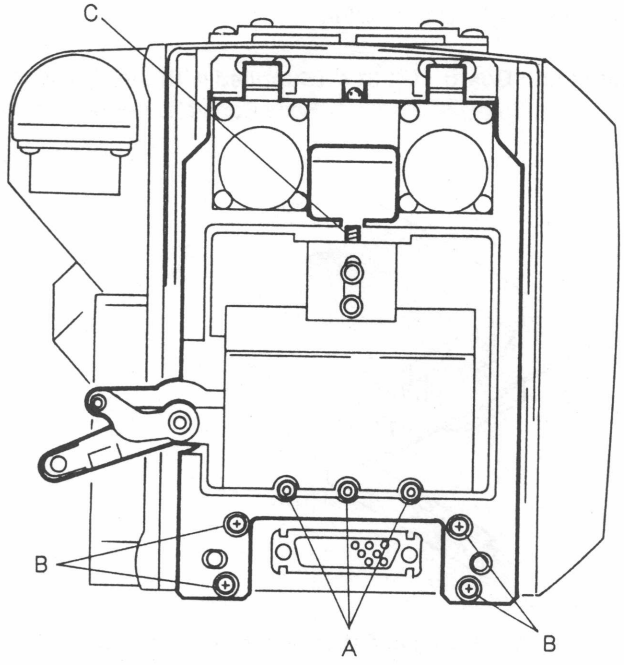
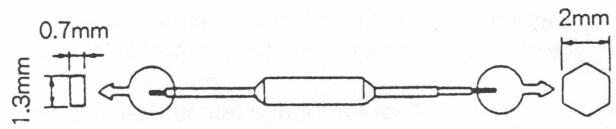


Fig. 1

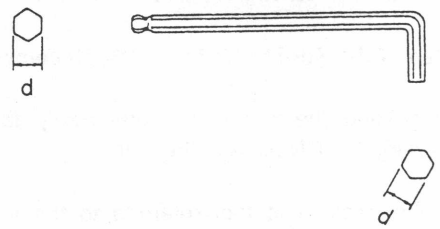
3-4. TOOLS AND FIXTURES

Adjusting Screwdriver Sony Parts No. 7-700-733-01



Product of BONDHUS

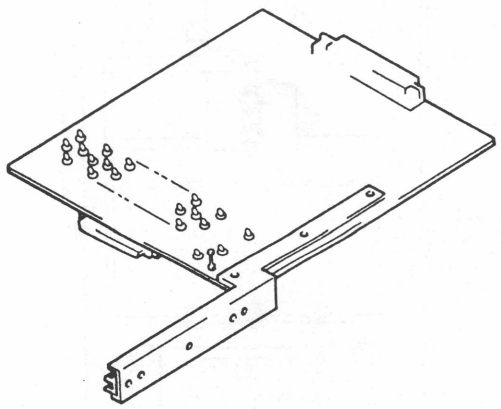
Sony Parts No. 7-721-130-54(d=3.0 mm)
7-721-130-55(d=4.0 mm)



Used when replacing with INCOM (JACK) harness and replacing the CCU connector.

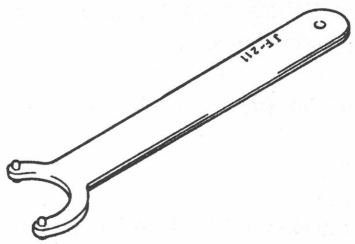
Extension Board "EX-317" (Supplied with the HDC-500)

Sony Parts No. A-8271-249-A



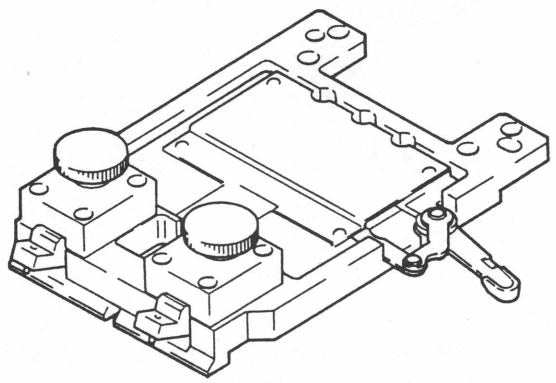
Used when checking and repairing the card board.

Special Spanner (JF-211) Sony Parts No. J-6272-110-A



Used when replacing the connector box.

Positioning Tool (B) Sony Parts No. J-6391-220-A



Used when replacing the CN plate or the wedge (small).

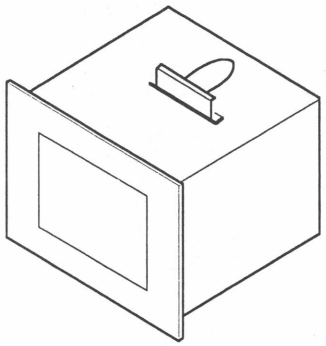
SECTION 4
ALIGNMENT

4-1. PREPARATION

4-1-1. Equipment Required

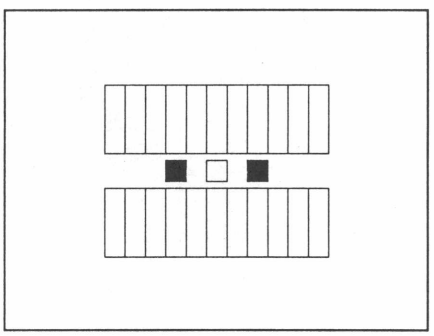
J-6029-140-B	Pattern Box PTB-500

PTB-100 is also available.



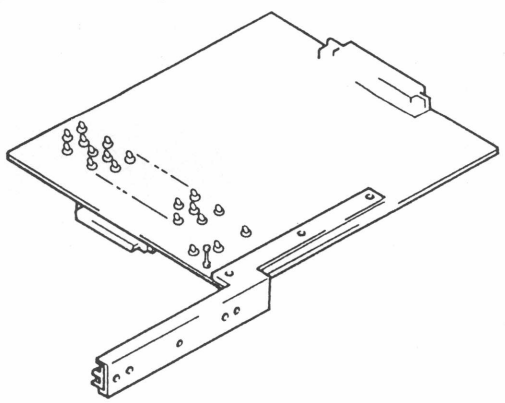
J-6026-130-B	Gray Scale Chart

Stick the velvet (black) at the both sides of white pattern in the center to avoid the light leakage.



A-8271-249-A	Extension Board EX-317

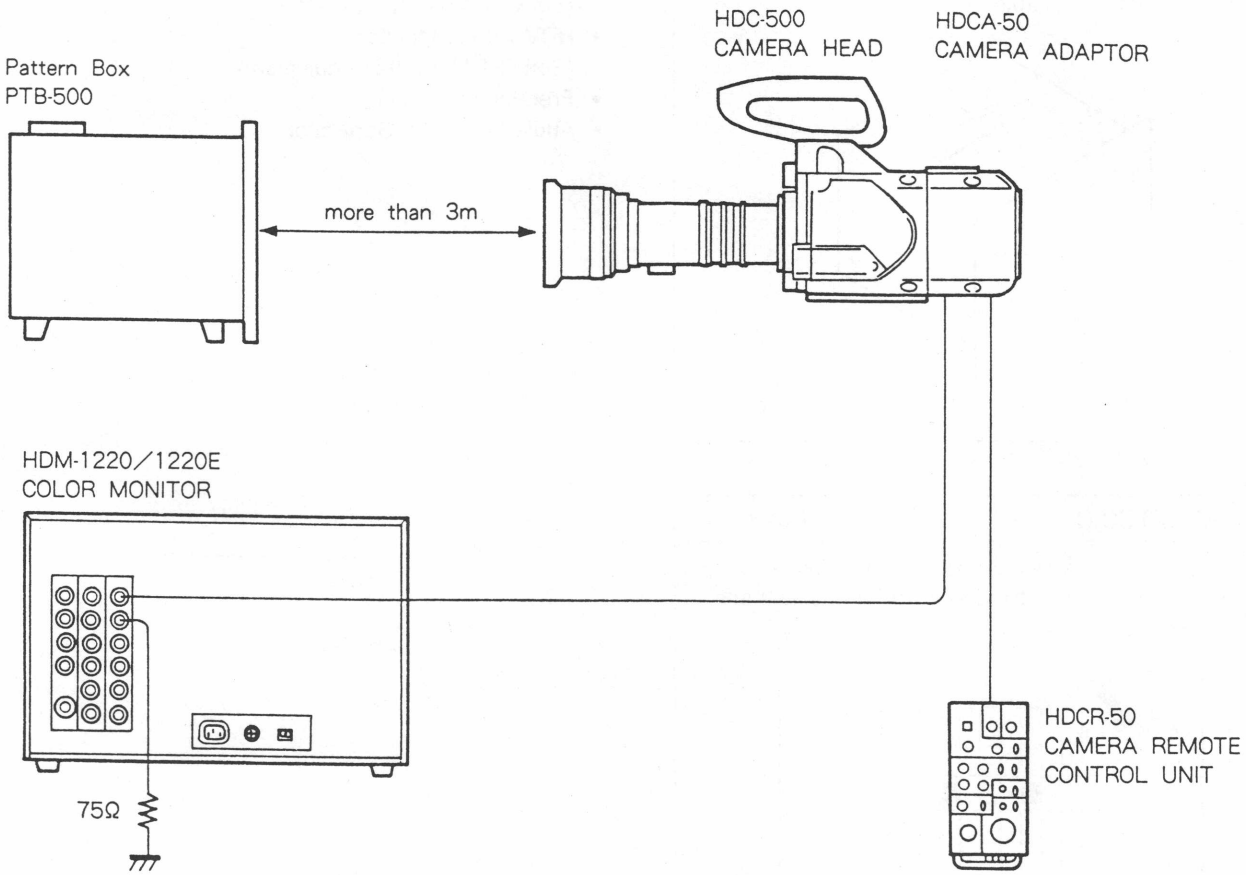
Supplied accessory



Equipment

- Digital voltmeter
- Oscilloscope
  (Tektronix 2465 or equivalent)
- HDVS Waveform monitor
  (Sony 1730HD or equivalent)
- HDVS Color Monitor
  (Sony HDM-1220 or equivalent)
- Frequency counter
- Audio frequency Generator

4-1-2. Connection



4-2. ADJUSTMENT

4-2-1. Initial Setting

HDCR-50

GAMMA	: PRESET
KNEE	: MANUAL, Fully counterclockwise ○
W/B BALANCE	: mechanical center
DTL	: mechanical center
MASTER BLACK	: mechanical center
CHU POWER	: ON
MODE	: TEST
GAIN	: 0 dB
SHUTTER	: OFF

HDCA-50

rear panel

INCOM LEVEL	: mechanical center
INCOM MIC	: ON
BLACK	: mechanical center
DTL	: mechanical center
H PHASE	: mechanical center
EAR	: mechanical center

IF-346 BOARD

S101 (BACK TALLY ON/OFF)	: ON
S102 (GAIN +12dB/+18dB)	: +12dB
S103 (CABLE 10M/20M)	: 10M
S104 (GBR/YPBPR)	: GBR
S105 (H PHASE REMOTE/LOCAL)	: REMOTE
S106 (MATRIX ON/OFF)	: OFF
S107 (MATRIX 1/2)	: 1
S108 (VF DTL ON/OFF)	: ON
S109 (REAR MAS PED ON/OFF)	: OFF
S110 (KNEE ON/OFF)	: OFF
S111 (GAMMA ON/OFF)	: OFF
S112 (WHT CLIP ON/OFF)	: OFF
S113 (DTL ON/OFF)	: OFF
S114 (SYSTEM PRESET ON/OFF)	: ON
S115 (FILE PRESET ON/OFF)	: OFF
S116 (AUX)	: Push to the right.

Note: After the adjustment, set the following switches.

IF-346 BOARD

S109 (REAR MAS PED ON/OFF)	: ON
S101 (KNEE ON/OFF)	: ON
S106 (MATRIX ON/OFF)	: ON
S111 (GAMMA ON/OFF)	: ON
S112 (WHT CLIP ON/OFF)	: ON
S113 (DTL ON/OFF)	: ON
S114 (SYSTEM PRESET ON/OFF)	: OFF

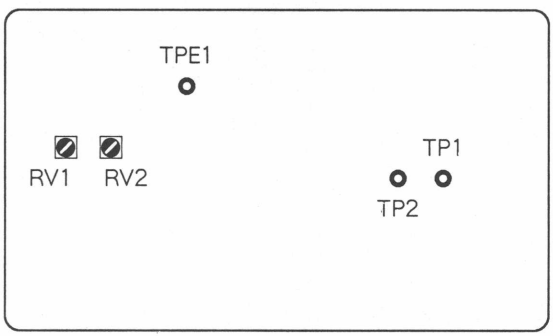
4-2-2. Note

- As adjustment is difficult on the following controls, absolutely do not turn them.
  - CV1/IF-346 board
  - RV501/IF-346 board
  - RV502/IF-346 board
  - RV2/PR-155 board

4-2-3. +5.5V/–5.5V Adjustment

Note: If this adjustment is performed, be sure to check all of adjustment items.

Equipment: Digital voltmeter
To be extended: RE-76 board
Adjustment Procedure
1. +5.5V Adjustment
   Test point: TP1(GND: TPE1)/RE-76 board
   Adjusting point: ⊘ RV1/RE-76 board
   Specification: +5.5 ± 0.01 V dc
2. –5.5V Adjustment
   Test point: TP2(GND: TPE1)/RE-76 board
   Adjusting point: ⊘ RV2/RE-76 board
   Specification: –5.5 ± 0.01 V dc

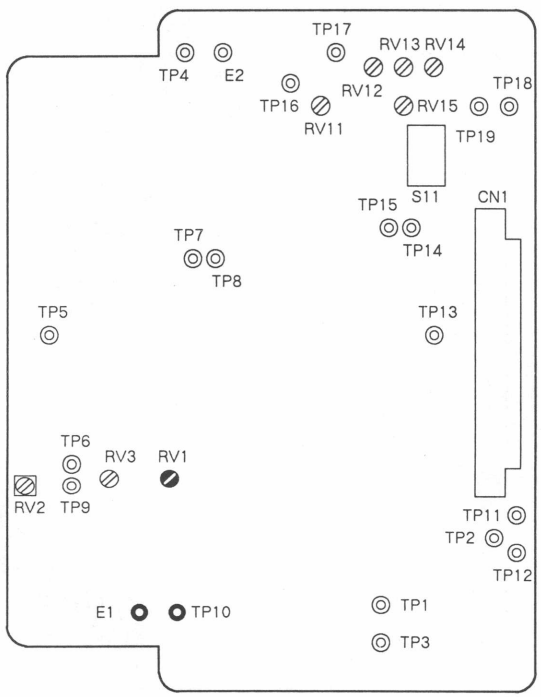


RE-76 BOARD (COMPONENT SIDE)

4-2-4. VCO Frequency Adjustment

Note: Open GENLOCK connector on the HDCD rear panel.

Equipment: Frequency counter
To be extended: SG-190 board
Test point: TP10(GND: E1)/SG-190 board
Adjusting point: ◐ RV1(FREQ ADJ)/SG-190 board
Specification: 74,250,000 ± 100 Hz



SG-190 BOARD (COMPONENT SIDE)

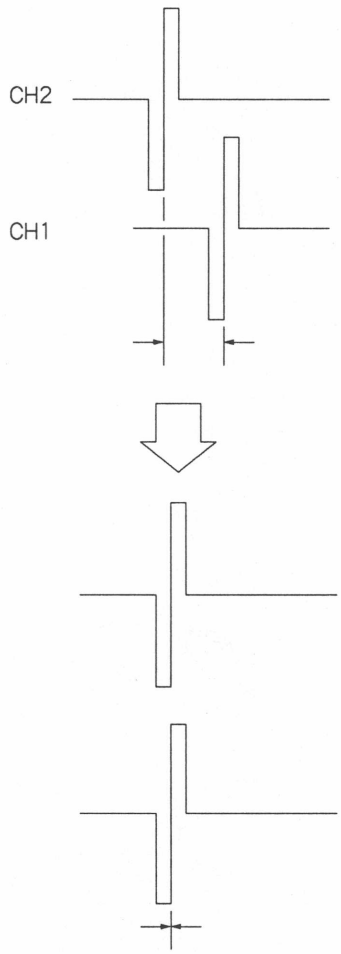
4-2-5. H PHASE Adjustment

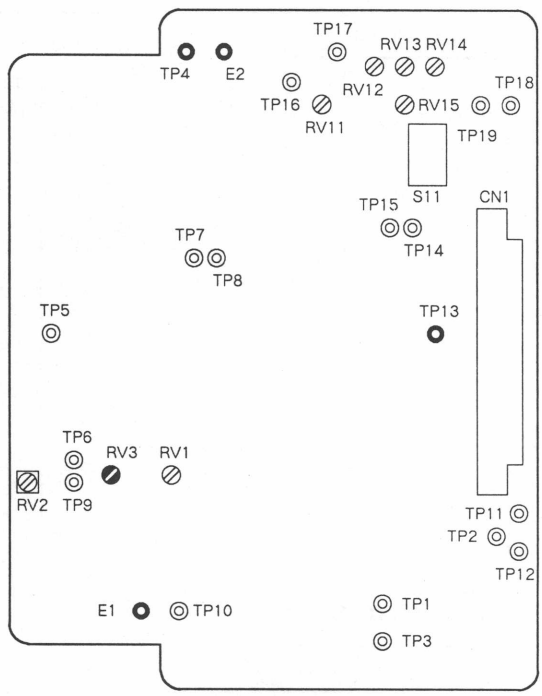
Note: Make sure that the REF SYNC (3-value SYNC) is input to the GENLOCK connector on HDCD rear panel.

Equipment: Oscilloscope
To be extended: SG-190 board
Preparation:

- ◐ RV3 [H PHASE] /VR-124 board → mechanical center
- ◐ RV2 (H PHASE COARSE)/SG-190 board
  → mechanical center

Test point: CH1 TP4 (GND: E2) /SG-190 board
CH2 TP13 (GND: E1) /SG-190 board
Adjusting point: ◐ RV3(H PHASE REF)/SG-190 board
Specification:





SG-190 BOARD (COMPONENT SIDE)

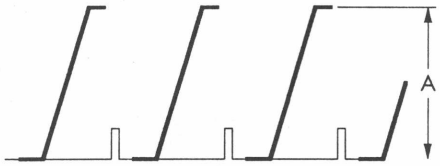
4-2-6. G/B/R Input Level Adjustment (PR-155 board)

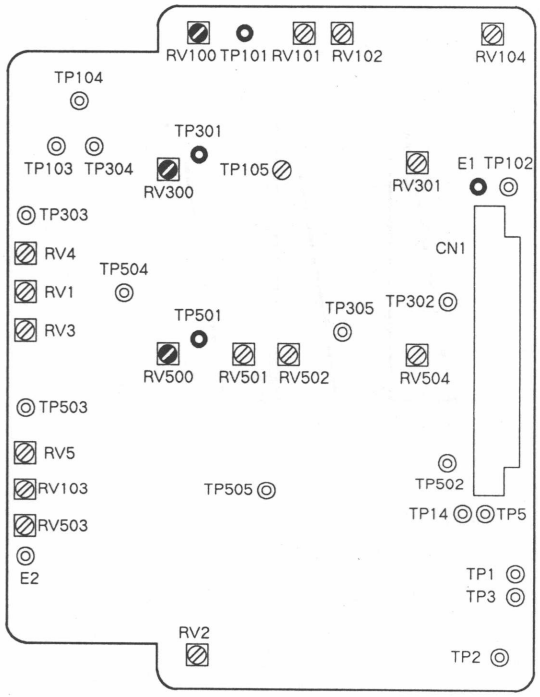
Equipment: Oscilloscope
To be extended: PR-155 board
Adjustment Procedure

- Perform the following adjustment in order of G-ch, B-ch and R-ch.

PR-155 board

	Test point (GND: E1)	Adjusting point	Specification
G-ch	TP301	RV300	A = 1.00 ± 0.01 Vp-p (DC – 2.5V)
B-ch	TP501	RV500	
R-ch	TP101	RV100	





PR-155 BOARD (COMPONENT SIDE)

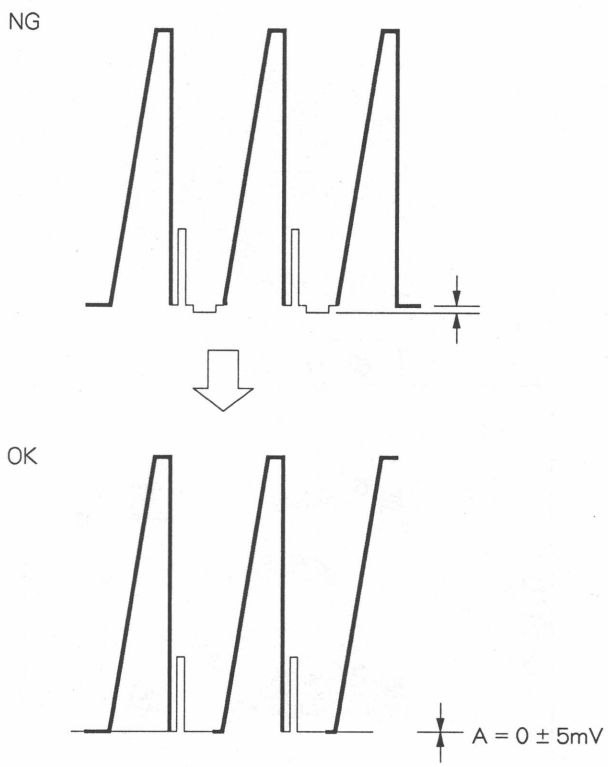
4-2-7. Pedestal Adjustment

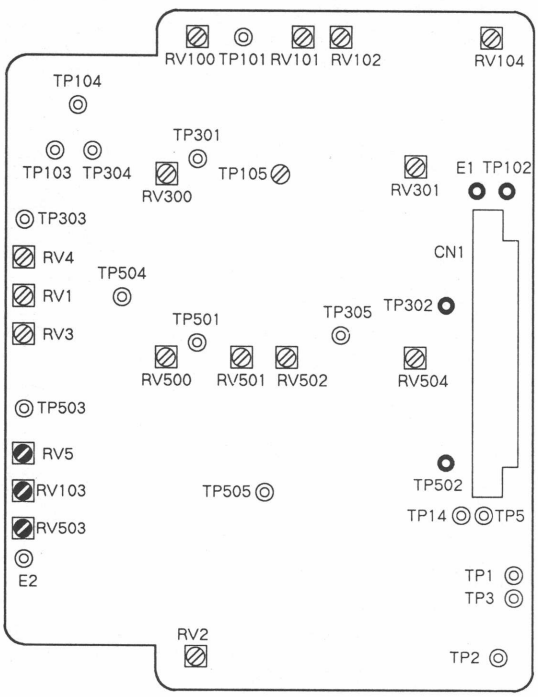
Equipment: Oscilloscope
To be extended: PR-155 board
Adjustment Procedure

- Perform the following adjustment in order of M-ch, B-ch and R-ch.

PR-155 board

	Test point (GND: E1)	Adjusting point	Specification
M-ch	TP302	RV5	A = 0 ± 5 mV
B-ch	TP502	RV503	
R-ch	TP102	RV103	





PR-155 BOARD (COMPONENT SIDE)

4-2-8. G/B/R OUT Level Adjustment (PR-155 board)

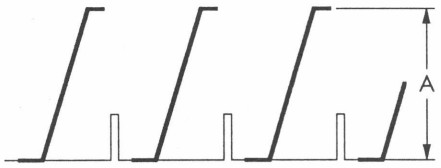
Note: Section 4-2-7. Pedestal Adjustment must be complete before this adjustment.

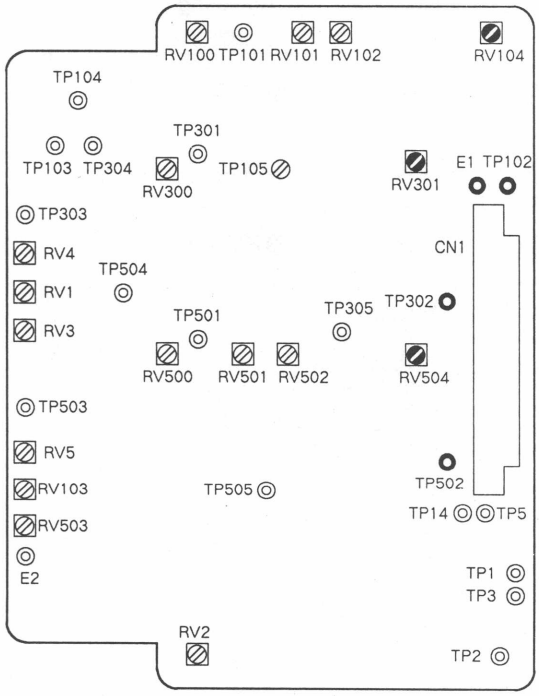
Equipment: Oscilloscope
To be extended: PR-155 board
Adjustment Procedure

- Perform the following adjustment in order of G-ch, B-ch and R-ch.

PR-155 board

	Test point (GND: E1)	Adjusting point	Specification
G-ch	TP302	RV301	A = 1.00 ± 0.01 Vp-p
B-ch	TP502	RV504	
R-ch	TP102	RV104	





PR-155 BOARD (COMPONENT SIDE)

4-2-9. Knee Slope Adjustment

Equipment: Oscilloscope
To be extended: PR-155 board
Preparation:

- GAIN switch/HDCR-50 → +6 dB
- S110 (KNEE ON/OFF) /IF-346 board → ON
- RV3 (M KNEE SLOPE) /PR-155 board
  → fully clockwise ↻
- RV502 (B KNEE SLOPE) /PR-155 board
  → fully clockwise ↻
- RV102 (R KNEE SLOPE) /PR-155 board
  → fully clockwise ↻

Adjustment Procedure

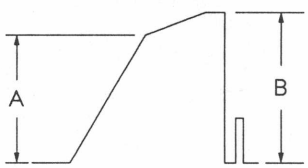
- Perform the following adjustment in order of M-ch, B-ch and R-ch.

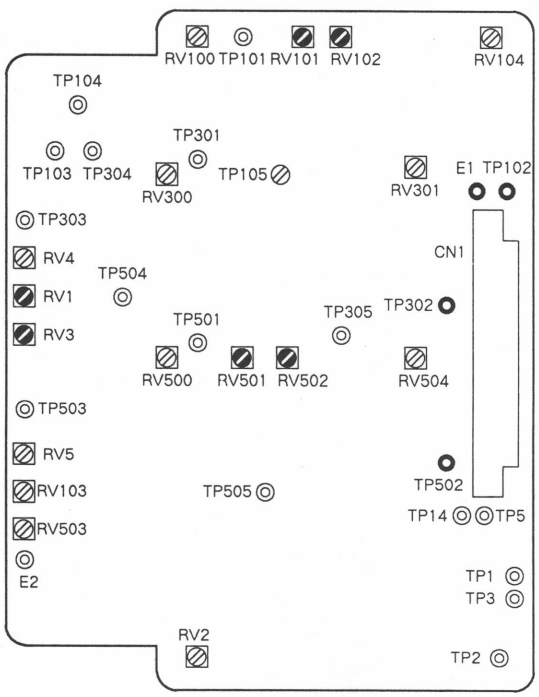
KNEE POINT Adjustment /PR-155 board

	Test point (GND: E1)	Adjusting point	Specification
M-ch	TP302	⊘RV1	A= 0.90 ± 0.05 V
B-ch	TP502	⊘RV501	
R-ch	TP102	⊘RV101	

KNEE SLOPE Adjustment /PR-155 board

	Test point (GND: E1)	Adjusting point	Specification
M-ch	TP302	⊘RV3	B= 1.14 ± 0.01 V
B-ch	TP502	⊘RV502	
R-ch	TP102	⊘RV102	





PR-155 BOARD (COMPONENT SIDE)

Note: After the adjustment, set the switch as follows.
GAIN switch/HDCR-50 → 0 dB
S110 (KNEE ON/OFF)/IF-346 board → OFF

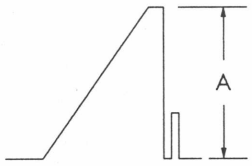
4-2-10. G/B/R Input Level Adjustment (PR-168 board)

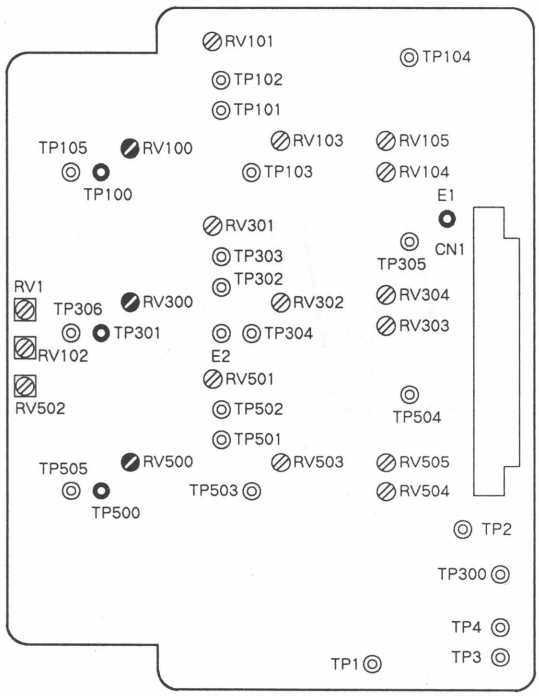
Equipment: Oscilloscope
To be extended: PR-168 board
Adjustment Procedure

- Perform the following adjustment in order of G-ch, B-ch and R-ch.

PR-168 board

	Test point (GND: E1)	Adjusting point	Specification
G-ch	TP301	RV300	A = 2.00 ± 0.01 Vp-p
B-ch	TP500	RV500	
R-ch	TP100	RV100	





PR-168 BOARD (COMPONENT SIDE)

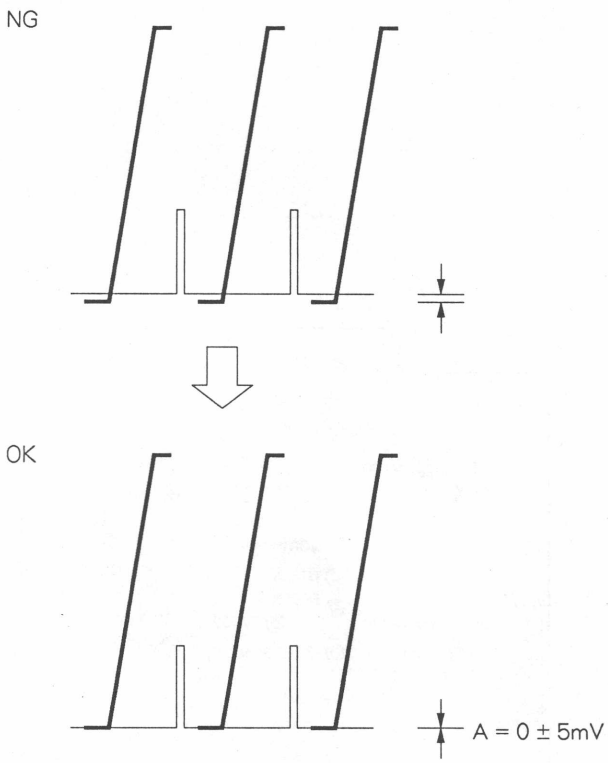
4-2-11. G/B/R Offset Adjustment

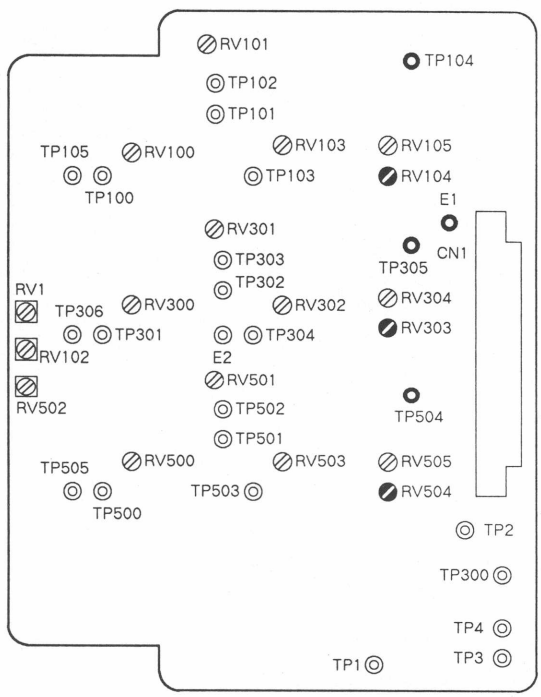
Equipment: Oscilloscope
To be extended: PR-168 board
Adjustment Procedure

- Perform the following adjustment in order of G-ch, B-ch and R-ch.

PR-168 board

	Test point (GND: E1)	Adjusting point	Specification
G-ch	TP305	RV303	A = 0 ± 5 mV
B-ch	TP504	RV504	
R-ch	TP104	RV104	





PR-168 BOARD (COMPONENT SIDE)

4-2-12. G/B/R OUT Level Adjustment (PR-168 board)

Note: Section 4-2-13. Gamma Balance Adjustment must be complete before this adjustment.

Equipment: Oscilloscope
To be extended: PR-168 board
Preparation:

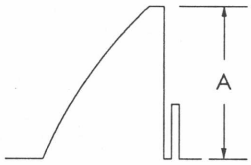
- S111 (GAMMA ON/OFF)/IF-346 board → ON
- ⊘RV105(R CLIP)/PR-168 board
  → Fully counterclockwise↺
  ⊘RV304(G CLIP)/PR-168 board
  → Fully counterclockwise↺
  ⊘RV505(B CLIP)/PR-168 board
  → Fully counterclockwise↺

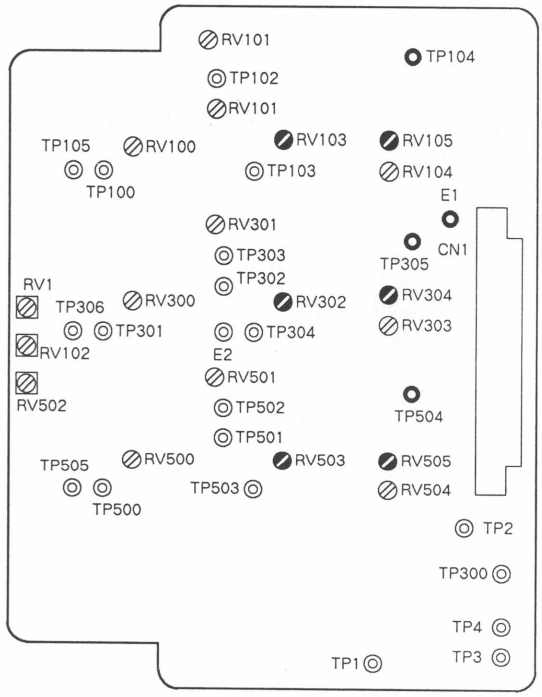
Adjustment Procedure

- Perform the following adjustment in order of G-ch, B-ch and R-ch.

PR-168 board

	Test point (GND: E1)	Adjusting point	Specification
G-ch	TP305	⊘RV302	A = 700 ± 5 mV
B-ch	TP504	⊘RV503	
R-ch	TP104	⊘RV103	





PR-168 BOARD (COMPONENT SIDE)

Note: After the adjustment, carry out Section 4-2-14. Gamma Level Adjustment.

4-2-13. Gamma Balance Adjustment

Note: When this adjustment is done, perform Section 4-2-14. Gamma Level Adjustment through Section 4-2-15. G/B/R Clip Level Adjustment continuously.

Equipment: Oscilloscope
To be extended: PR-168 board
Preparation:

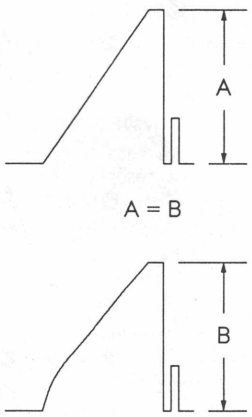
- RV105(R CLIP)/PR-168 board
  → Fully counterclockwise
  RV304(G CLIP)/PR-168 board
  → Fully counterclockwise
  RV505(B CLIP)/PR-168 board
  → Fully counterclockwise

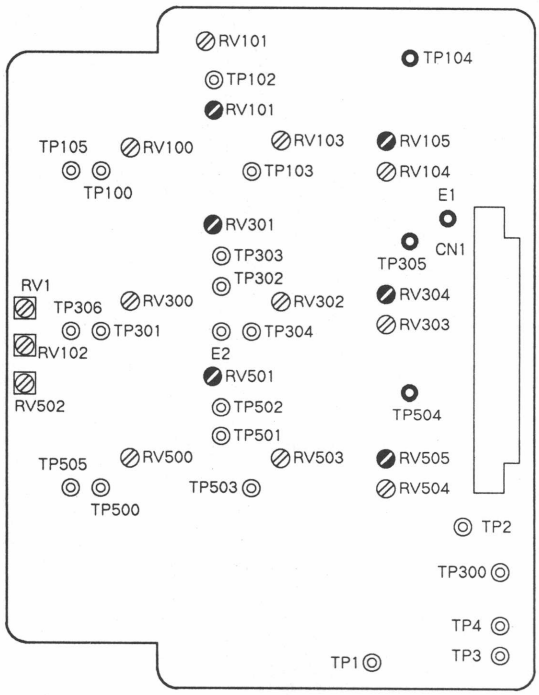
Adjustment Procedure

- Perform the following adjustment in order of G-ch, B-ch and R-ch.

PR-168 board

	Test point (GND: E1)	Adjusting point	Specification
G-ch	TP305	RV301	Adjust so that the peak level of the waveform does not fluctuate even when the S111 (GAMMA ON/OFF) switch/IF-346 board is turned ON and OFF.
B-ch	TP504	RV501	
R-ch	TP104	RV101	





PR-168 BOARD (COMPONENT SIDE)

4-2-14. Gamma Level Adjustment

Note: Section 4-2-12. G/B/R OUT Level Adjustment (PR-168 board) must be complete before this adjustment.

Equipment: Oscilloscope
To be extended: PR-168 board
Preparation:

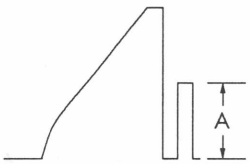
- S111 (GAMMA ON/OFF) switch/IF-346 board → ON
- ⊘ RV105(R CLIP)/PR-168 board → Fully counterclockwise ↺
  ⊘ RV304(G CLIP)/PR-168 board → Fully counterclockwise ↺
  ⊘ RV505(B CLIP)/PR-168 board → Fully counterclockwise ↺

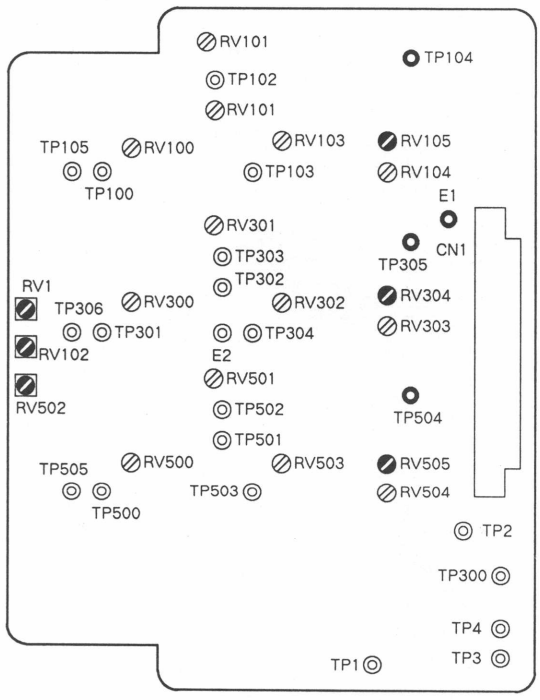
Adjustment Procedure

- Perform the following adjustment in order of M-ch, B-ch and R-ch.

PR-168 board

	Test point (GND: E1)	Adjusting point	Specification
M-ch	TP305	⊘ RV1	A = 350 ± 2 mV
B-ch	TP504	⊘ RV502	
R-ch	TP104	⊘ RV102	





PR-168 BOARD (COMPONENT SIDE)

Note: After the adjustment, carry out Section 4-2-15. G/B/R Clip Level Adjustment.

4-2-15. G/B/R CLIP Level Adjustment

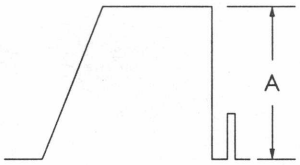
Note: Section 4-2-14. Gamma Level Adjustment must be complete before this adjustment.

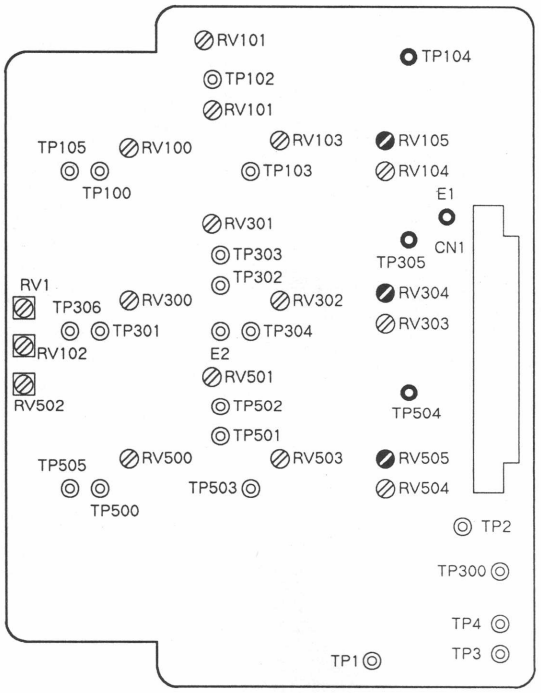
Equipment: Oscilloscope
To be extended: PR-168 board
Preparation:
- GAIN switch/HDCR-50 → +6 dB

Adjustment Procedure
- Perform the following adjustment in order of G-ch, B-ch and R-ch.

PR-168 board

	Test point (GND: E1)	Adjusting point	Specification
G-ch	TP305	RV304	A = 805 ± 10 mV
B-ch	TP504	RV505	
R-ch	TP104	RV105	





PR-168 BOARD (COMPONENT SIDE)

Note: After the adjustment, set the GAIN switch/HDCR-50 to "0 dB".

4-2-16. H DTL Balance Adjustment

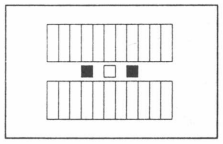
Object: Grayscale chart
Equipment: Oscilloscope, Waveform monitor
To be extended: IE-34 board
Preparation:

- MODE switch/HDCR-50 → CAM

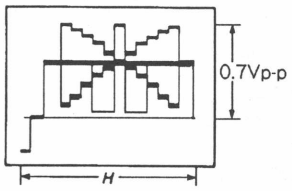
Adjustment Procedure

1. Shoot the grayscale chart as shown below.

Monitor screen

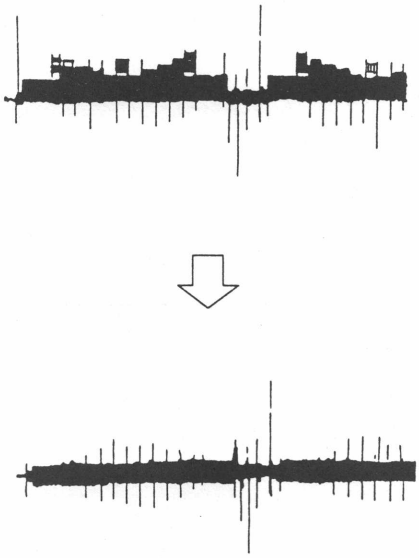


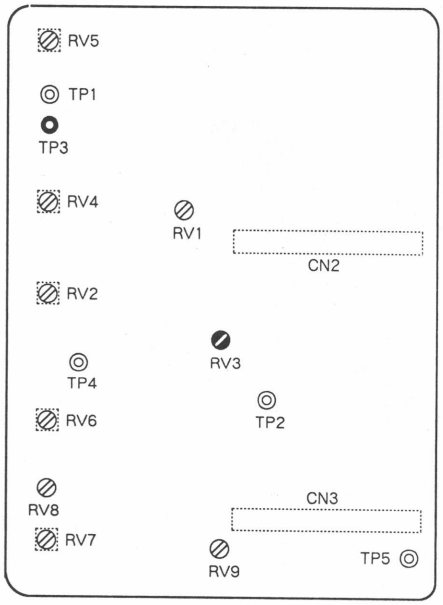
Waveform monitor



2. Adjust the lens iris so that the VIDEO OUT Level is 0.7 V.

3. Adjust ⊘ RV3 /IE-34 board so that the waveform at TP3/IE-34 board becomes flat.





IE-34 BOARD (COMPONENT SIDE)

4-2-17. V DTL Balance Adjustment

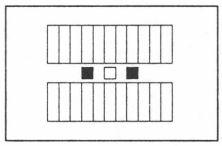
Object: Grayscale chart
Equipment: Oscilloscope, Waveform monitor
To be extended: IE-34 board
Preparation:

- MODE switch/HDCR-50 → CAM

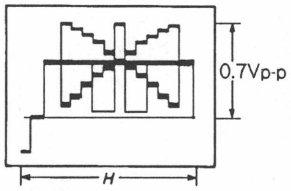
Adjustment Procedure

1. Shoot the grayscale chart as shown below.

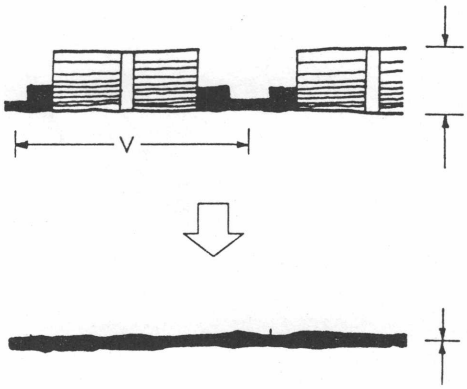
Monitor screen

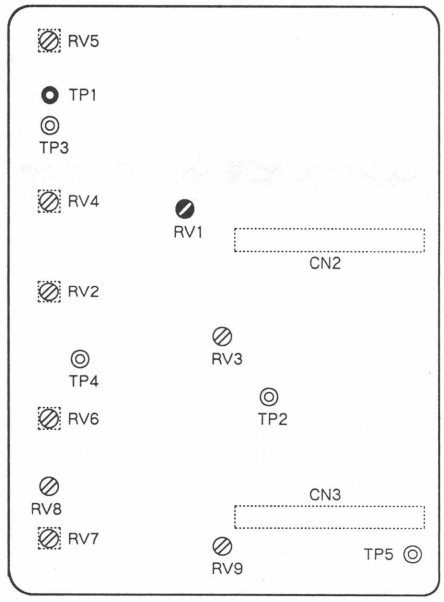


Waveform monitor



2. Adjust the lens iris so that the VIDEO OUT Level is 0.7 V.
3. Adjust ⊘ RV1/IE-34 board so that the waveform at TP1/IE-34 board becomes flat.





IE-34 BOARD (COMPONENT SIDE)

4-2-18. Level Dependent Adjustment

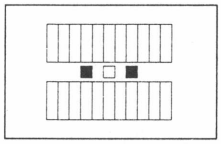
Object: Grayscale chart
Equipment: Oscilloscope
To be extended: IE-34 board
Preparation:
Disconnect the HDCR-50.

- MODE switch/HDC-500 → CAM
- DETAIL control/HDCA-50 rear panel
  → Fully clockwise ↻
- S113 [DTL ON/OFF] /IF-346 board → ON
- ⊘ RV4 [H/V BAL] /IE-34 board → mechanical center
- ⊘ RV6 [CRISP] /IE-34 board → Fully counterclockwise ↺
- ⊘ RV9 [DTL LEVEL] /IE-34 board → Fully clockwise ↻

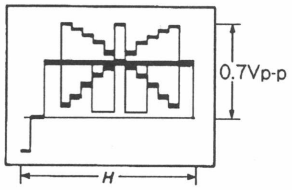
Adjustment Procedure

1. Shoot the grayscale chart as shown below.

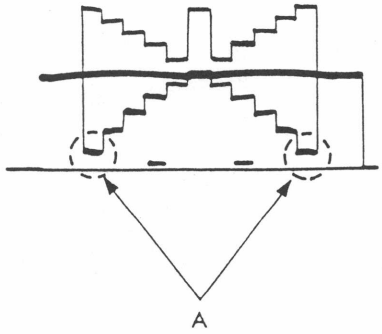
Monitor screen

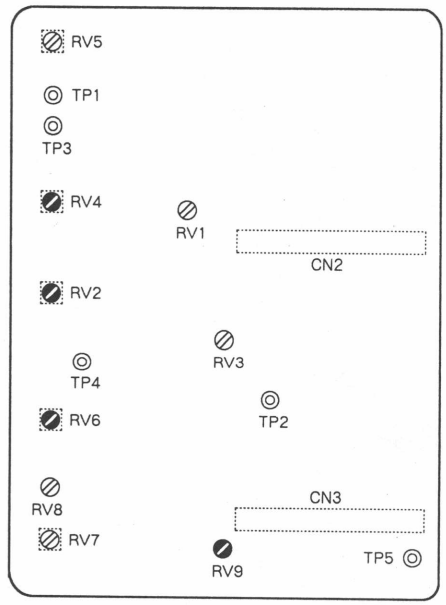


Waveform monitor



2. Adjust the lens iris so that the VIDEO OUT Level is 0.7 V.
3. Turn ⊘ RV2 (LEVEL DEPEND)/IE-34 board from the leftmost position clockwise slowly and stop where the spikes portion A to decrease.





IE-34 BOARD (COMPONENT SIDE)

Note: After the adjustment, put HDCR-50 back where it was.

4-2-19. H/V RATIO Adjustment

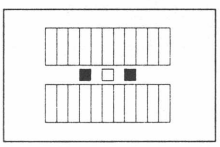
Object: Grayscale chart
Equipment: Oscilloscope
To be extended: IE-34 board
Preparation:

- MODE switch/HDC-500 → CAM
- DETAIL control/HDCA-50 rear panel
  → Fully clockwise ↻
- S113 [DTL ON/OFF] /IF-346 board → ON

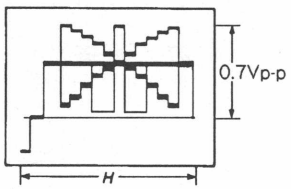
Adjustment Procedure

1. Shoot the grayscale chart as shown below.

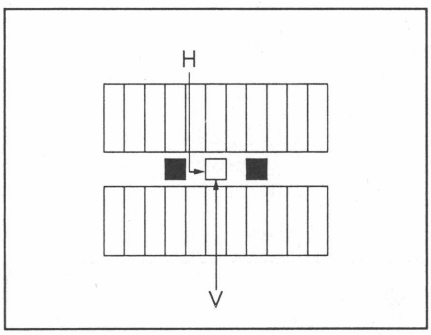
Monitor screen

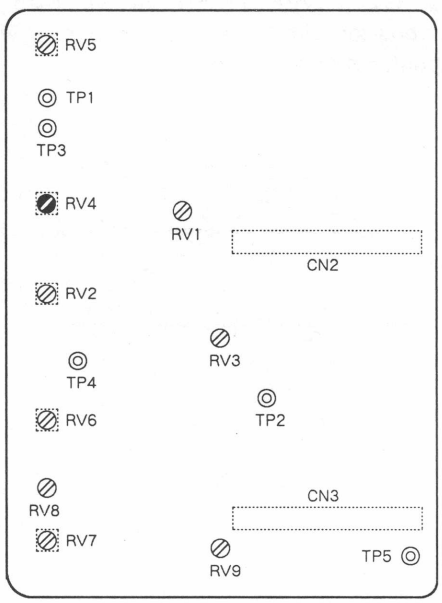


Waveform monitor



2. Adjust the lens iris so that the VIDEO OUT Level is 0.7 V.
3. Adjust ⊘ RV4 (H/V BAL) /IE-34 board so that both horizontal and vertical detail levels are equal.





IE-34 BOARD (COMPONENT SIDE)

4-2-20. Crispening Adjustment

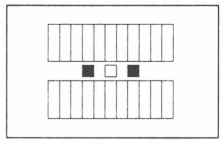
Object: Grayscale chart
Equipment: Oscilloscope
To be extended: IE-34 board
Preparation:

- MODE switch/HDC-500 → CAM
- DETAIL control/HDCA-50 rear panel
  → Fully clockwise ↻
- S113 [DTL ON/OFF] /IF-346 board → ON
- ⊘ RV9 [DTL LEVEL] /IE-34 board → mechanical center

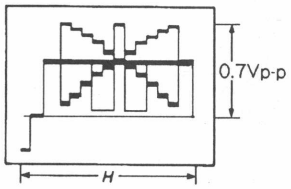
Adjustment Procedure

1. Shoot the grayscale chart as shown below.

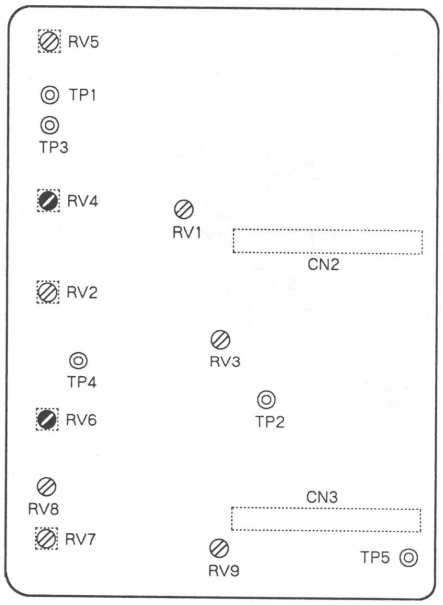
Monitor screen



Waveform monitor



2. Adjust the lens iris so that the VIDEO OUT Level is 0.7 V.
3. Observe the waveform monitor and turn ⊘ RV6 [CRISP] /IE-34 board clockwise until the noise on the black areas of the picture just starts to be reduced.
   Otherwise adjust to your preferred level.



IE-34 BOARD (COMPONENT SIDE)

4-2-21. DTL Clip Level Adjustment

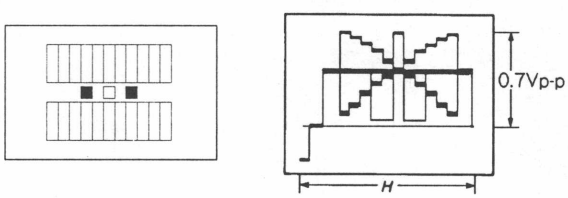
Object: Grayscale chart
Equipment: Oscilloscope
To be extended: IE-34 board
Preparation:

- MODE switch/HDC-500 → CAM
- DETAIL control/HDCA-50 rear panel
  → Fully clockwise ↻
- S113 [DTL ON/OFF] /IF-346 board → ON
- ⊘ RV9 [DTL LEVEL] /IE-34 board → Fully clockwise ↻
- ⊘ RV8 (CLIP BAL)/IE-34 board → mechanical center

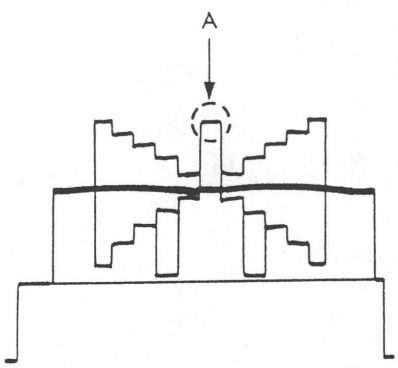
Adjustment Procedure

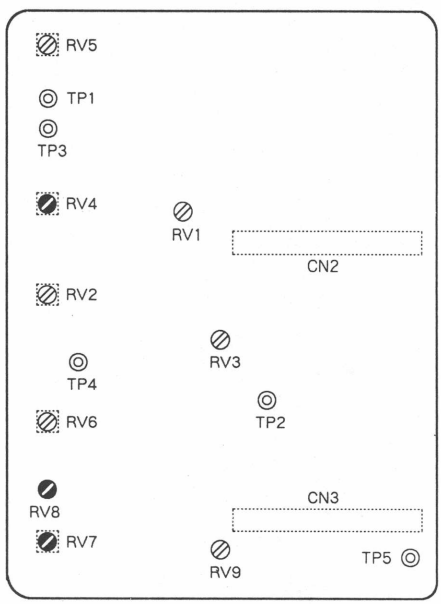
1. Shoot the grayscale chart as shown below.

Monitor screen　　Waveform monitor



2. Adjust the lens iris so that the VIDEO OUT Level is 0.7 V.
3. Adjust ⊘ RV7(CLIP)/IE-34 board clockwise slowly from the leftmost position and stop where the spike at portion A becomes 2/3 of its maximum size.





IE-34 BOARD (COMPONENT SIDE)

4-2-22. DTL Level Adjustment

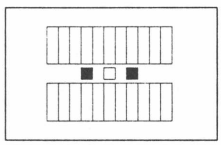
Object: Grayscale chart
Equipment: Oscilloscope
To be extended: IE-34 board
Preparation:

- MODE switch/HDC-500 → CAM
- DETAIL control/HDCA-50 rear panel
  → Fully clockwise ↻
- S113 [DTL ON/OFF] /IF-346 board → ON

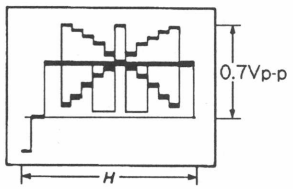
Adjustment Procedure

1. Shoot the grayscale chart as shown below.

Monitor screen

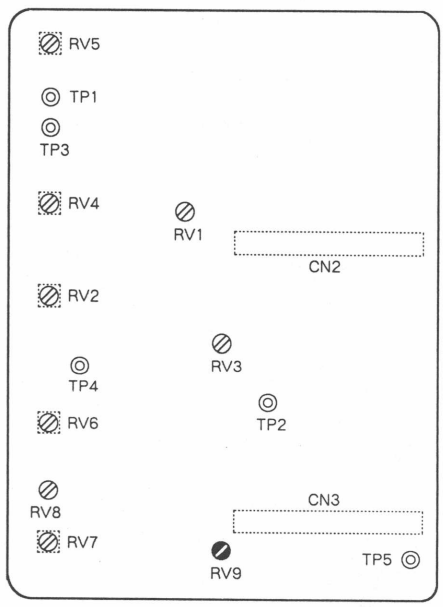


Waveform monitor



2. Adjust the lens iris so that the VIDEO OUT Level is 0.7 V.

3. Adjust ⊘ RV9 [DTL LEVEL] /IE-34 board to your preferred detail level.



IE-34 BOARD (COMPONENT SIDE)

4-2-23. VF DTL OUT Level Adjustment

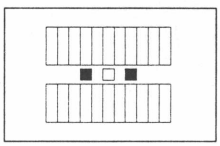
Object: Grayscale chart
Equipment: Oscilloscope, Viewfinder screen
To be extended: IE-34 board
Preparation:

- MODE switch/HDCR-50 → CAM
- S113 [DTL ON/OFF] /IF-346 board → ON

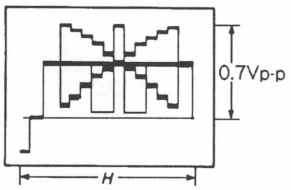
Adjustment Procedure

1. Shoot the grayscale chart as shown below.

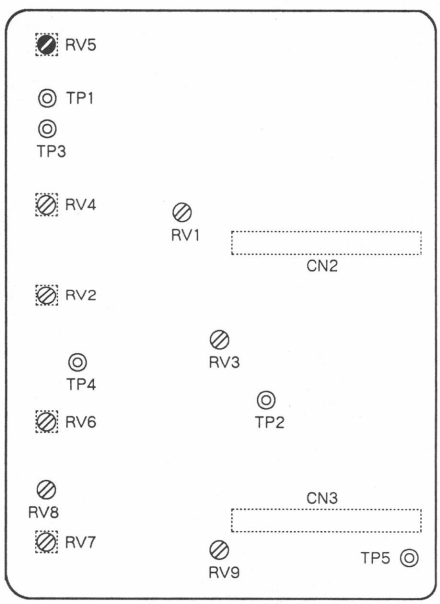
Monitor screen



Waveform monitor



2. Adjust the lens iris so that the VIDEO OUT Level is 0.7 V.
3. Observe the viewfinder screen and adjust ⊘ RV5 (VF DTL LEVEL)/IE-34 board to your preferred detail level.



IE-34 BOARD (COMPONENT SIDE)

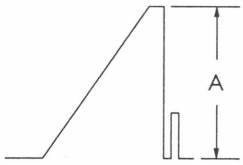
4-2-24. G/B/R OUT Level Adjustment (IE-32 board)

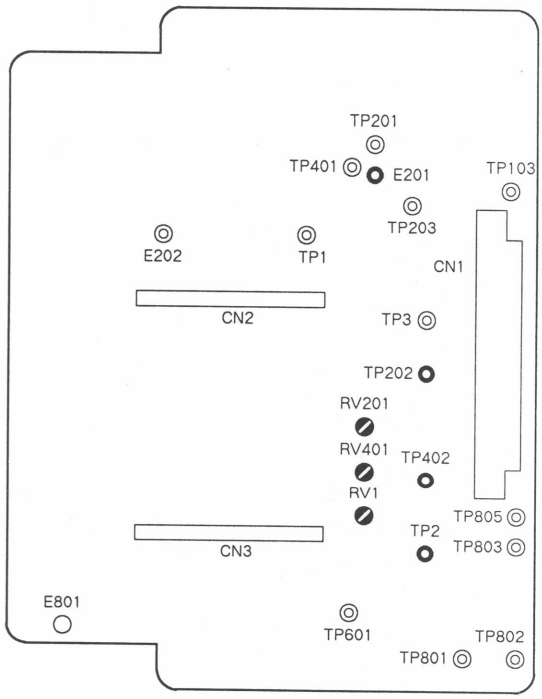
Equipment: Oscilloscope
To be extended: IE-32 board
Adjustment Procedure

- Perform the following adjustment in order of G-ch, B-ch and R-ch.

IE-32 board

	Test point (GND: E201)	Adjusting point	Specification
G-ch	TP402	⊘ RV401	A = 700 ± 5 mV
B-ch	TP2	⊘ RV1	
R-ch	TP202	⊘ RV201	





IE-32 BOARD (COMPONENT SIDE)

4-2-25. Black OFFSET Adjustment

Note: When this adjustment is done, perform Section 4-2-26. G/B/R Video Level Adjustment through Section 4-2-30. PB Balance/Level Adjustment continuously.

Equipment: Oscilloscope

To be extended: VDA-18 board

Preparation:

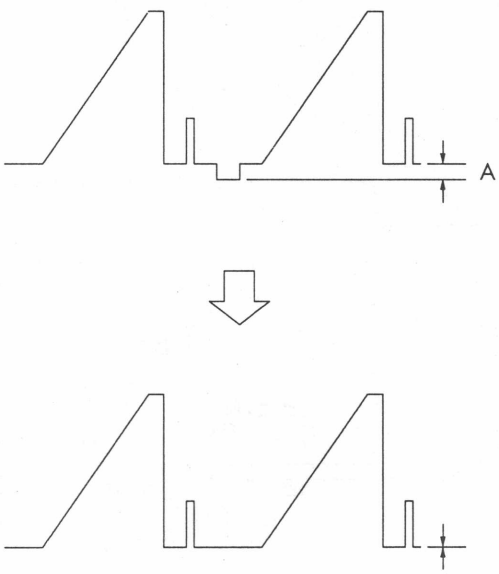
- S112 (WHT CLIP ON/OFF)/IF-346 board → OFF

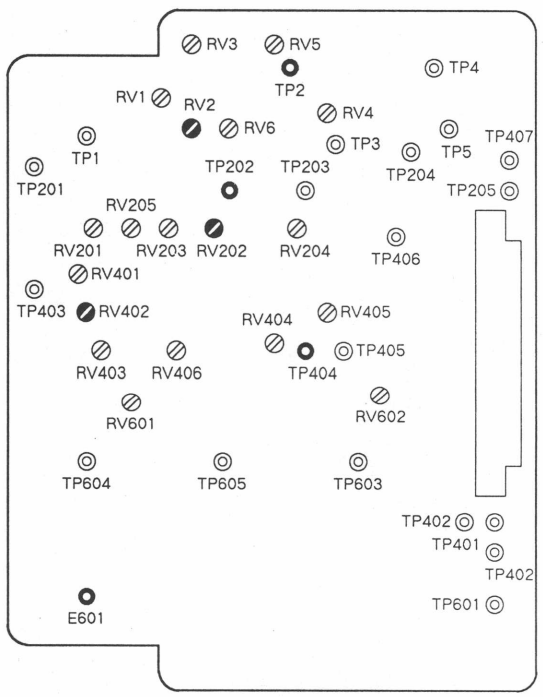
Adjustment Procedure

- Perform the following adjustment in order of G-ch, B-ch and R-ch.

VDA-18 board

	Test point (GND: E601)	Adjusting point	Specification
G-ch	TP202	RV202	A = 0 ± 2 mV
B-ch	TP404	RV402	
R-ch	TP2	RV2	





VDA-18 BOARD (COMPONENT SIDE)

Note: After the adjustment, carry out Section 4-2-26. G/B/R Video Level Adjustment.

4-2-26. G/B/R Video Level Adjustment

Note: Section 4-2-25. Black Offset Adjustment must be complete before this adjustment.

Equipment: Oscilloscope
To be extended: VDA-18 board
Preparation:

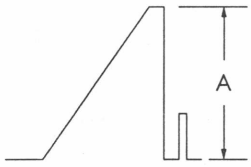
- S112 (WHT CLIP ON/OFF)/IF-346 board → OFF

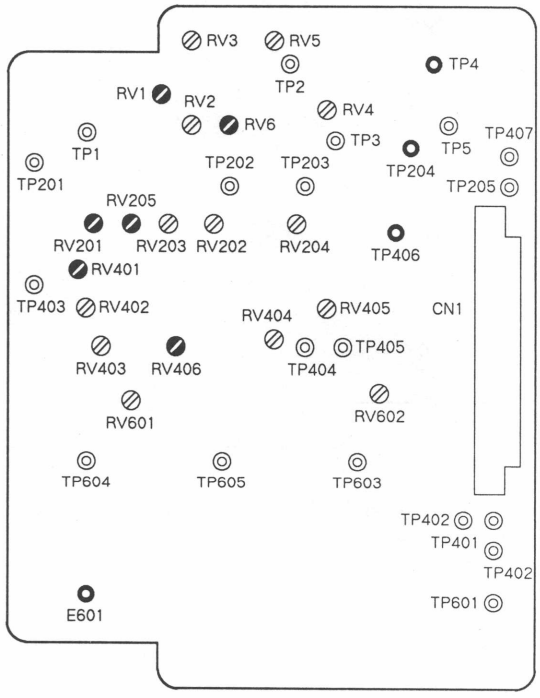
Adjustment Procedure

- Perform the following adjustment in order of G-ch, B-ch and R-ch.

VDA-18 board

	Test point (GND: E601)	Adjusting point	Specification
G-ch	TP204	◐ RV205	A = 1.4 ± 0.01 V
B-ch	TP406	◐ RV406	
R-ch	TP4	◐ RV6	





VDA-18 BOARD (COMPONENT SIDE)

4-2-27. G/B/R BARS Level Adjustment

Equipment: Oscilloscope
To be extended: VDA-18 board
Preparation:

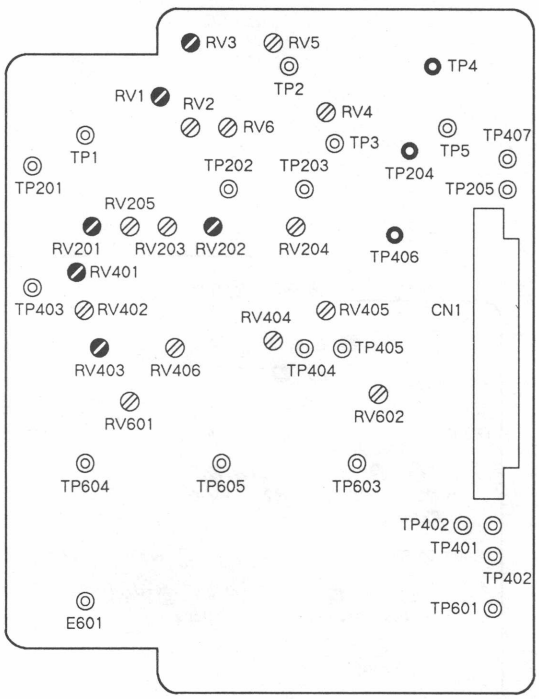
- MODE switch/HDCR-50 → BARS
- S104 (GBR/YRBPR)/IF-346 board → YRBPR

Adjustment Procedure

- Perform the following adjustment in order of G-ch, B-ch and R-ch.

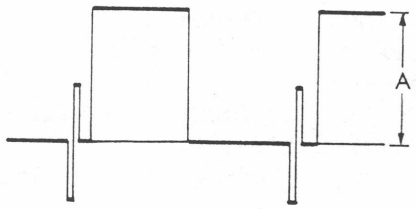
VDA-18 board

	Test point (GND: E601)	Adjusting point	Specification
G-ch	TP204	RV203	A = 1.4 ± 0.01 V
B-ch	TP406	RV403	
R-ch	TP4	RV3	

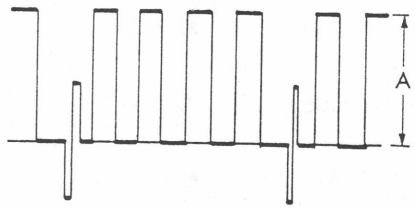


VDA-18 BOARD (COMPONENT SIDE)

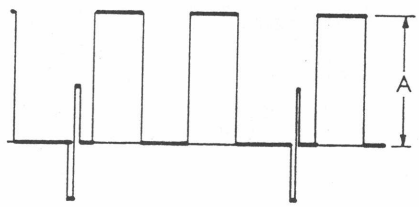
[G]



[B]



[R]



Note: After the adjustment, carry out Section 4-2-28. Y Level Adjustment.

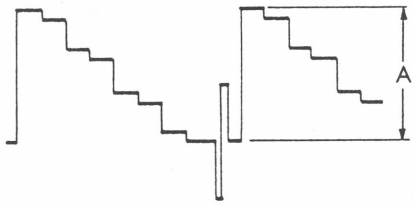
4-2-28. Y Level Adjustment

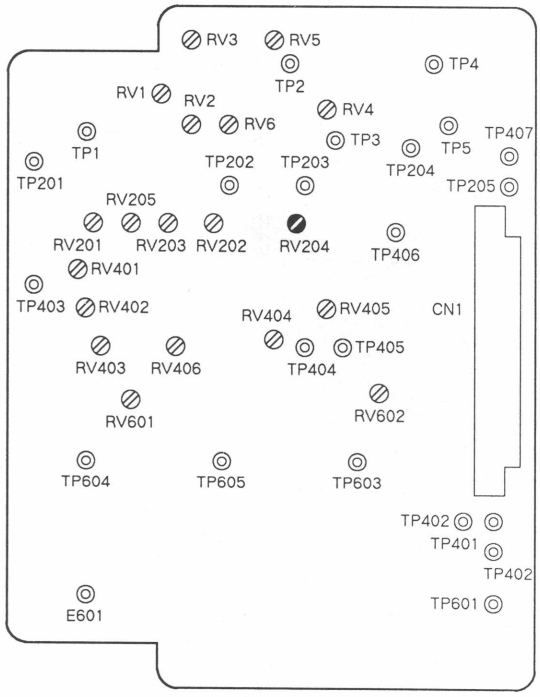
Note: Section 4-2-27. G/B/R BARS Level Adjustment must be complete before this adjustment.

Equipment: Oscilloscope
To be extended: VDA-18 board
Preparation:
- MODE switch/HDCR-50 → BARS
- S104 (GBR/YPBPR)/IF-346 board → YPBPR

Test point: TP204/VDA-18 board
Adjusting point: ◐ RV204/VDA-18 board
Specification: A = 1.4 ± 0.01 V

[Y]





VDA-18 BOARD (COMPONENT SIDE)

Note: After the adjustment, carry out Section 4-2-29. PR Balance/Level Adjustment.

4-2-29. PR Balance/Level Adjustment

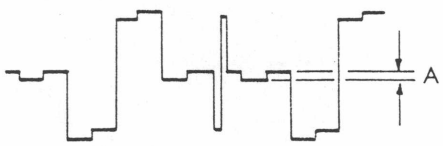
Note: Section 4-2-28. Y Level Adjustment must be complete before this adjustment.

Equipment: Oscilloscope
To be extended: VDA-18 board
Preparation:
- MODE switch/HDCR-50 → BARS
- S104 (GBR/YPBPR)/IF-346 board → YPBPR

Adjustment Procedure
1. **Test point:** TP4/VDA-18 board
   Adjusting point: ◐ RV4/VDA-18 board
   Specification: A = 0 ± 2 mV
2. **Test point:** TP4/VDA-18 board
   Adjusting point: ◐ RV5/VDA-18 board
   Specification: B = 1.4 ± 0.01 V

[PR]

NG



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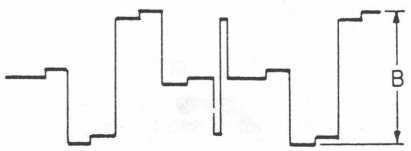
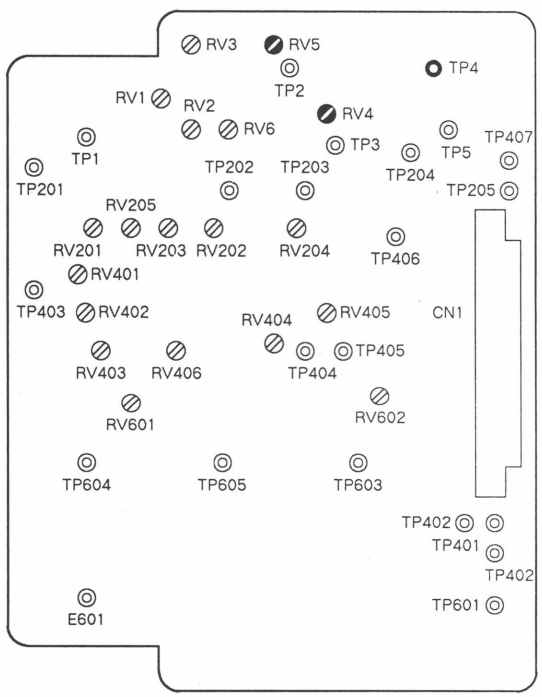




VDA-18 BOARD (COMPONENT SIDE)

4-2-30. PB Balance/Level Adjustment

Note: Section 4-2-29. PR Balance/Level Adjustment must be complete before this adjustment.

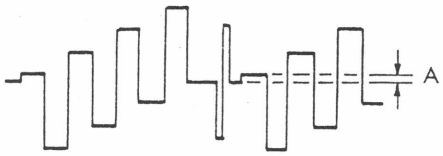
Equipment: Oscilloscope
To be extended: VDA-18 board
Preparation:
- MODE switch/HDCR-50 → BARS
- S104 (GBR/YPBPR)/IF-346 board → YPBPR

Adjustment Procedure

1. **Test point**: TP406/VDA-18 board
   Adjusting point: ⊘ RV404/VDA-18 board
   Specification: A = 0 ± 2 mV
2. **Test point**: TP406/VDA-18 board
   Adjusting point: ⊘ RV405/VDA-18 board
   Specification: B = 1.4 ± 0.01 V

[PB]

NG



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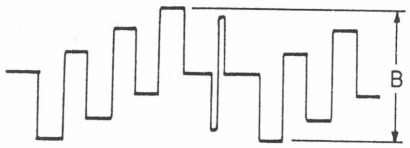
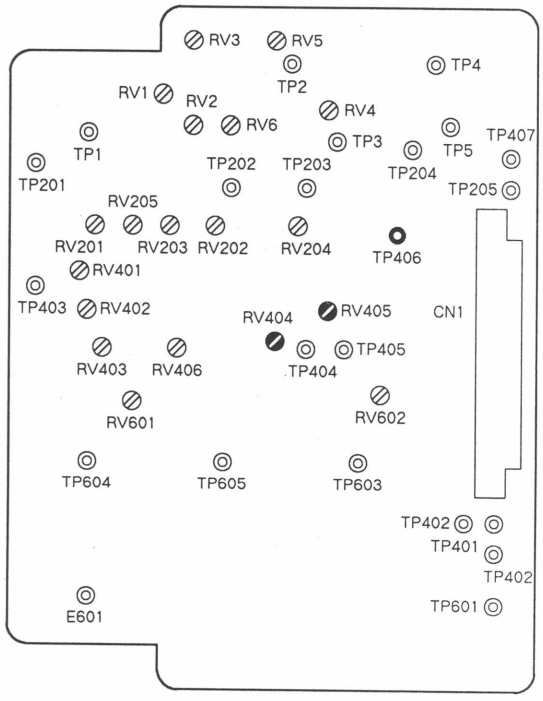
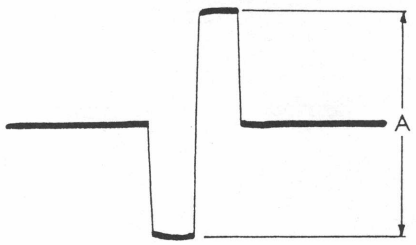


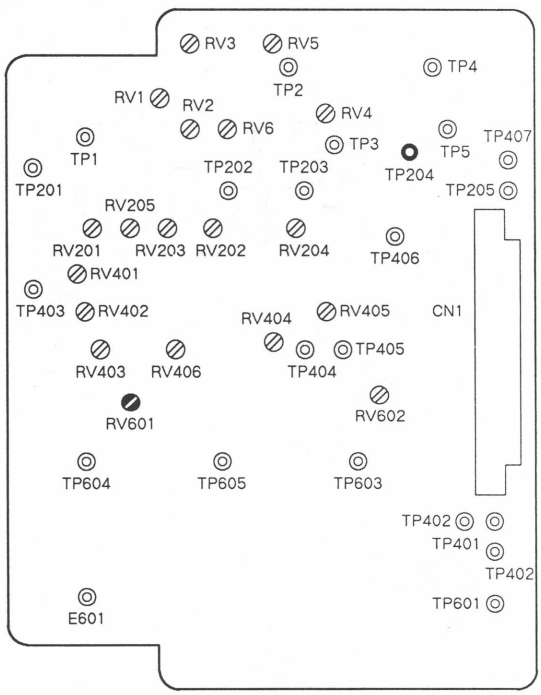


VDA-18 BOARD (COMPONENT SIDE)

4-2-31. SYNC Level Adjustment

Equipment: Oscilloscope
To be extended: VDA-18 board
Test point: TP204/VDA-18 board
Adjusting point: ◐ RV601/VDA-18 board
Specification: A = 1.2 ± 0.01 V





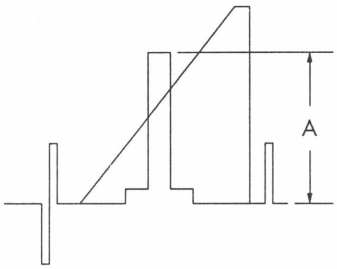
VDA-18 BOARD (COMPONENT SIDE)

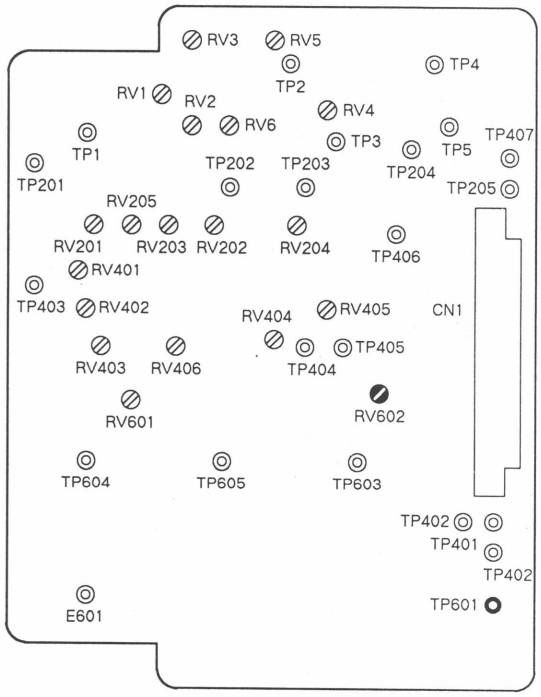
4-2-32. CHARACTER Level Adjustment

Equipment: Oscilloscope
To be extended: VDA-18 board
Preparation:

- Put the VF CENTER button/HDCA-50 rear panel for CENTER MARKER ON mode.

Test point: TP601/VDA-18 board
Adjusting point: ⊘ RV602/VDA-18 board
Specification: A = 1.00 ± 0.01 V





VDA-18 BOARD (COMPONENT SIDE)

4-2-33. White Clip Adjustment

Equipment: Oscilloscope
To be extended: VDA-18 board
Preparation:

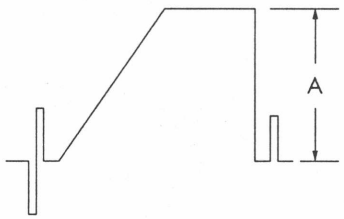
- GAIN switch/HDCR-50 → +6 dB
- S112 (WHT CLIP ON/OFF)/IF-346 board → ON

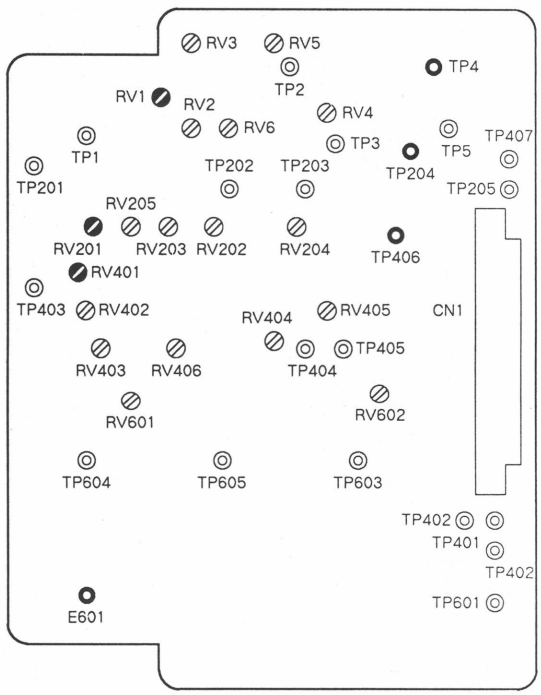
Adjustment Procedure

- Perform the following adjustment in order of M-ch, B-ch and R-ch.

VDA-18 board

	Test point (GND: E601)	Adjusting point	Specification
M-ch	TP204	◐ RV201	A = 1.50 ± 0.01 V
B-ch	TP406	◐ RV401	
R-ch	TP4	◐ RV1	





VDA-18 BOARD (COMPONENT SIDE)

Note: After the adjustment, set the GAIN switch/HDCR-50 to "0 dB".

4-2-34. Auto Knee Peak Adjustment

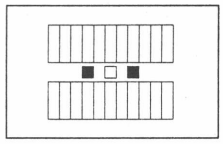
Equipment: Oscilloscope
To be extended: PR-155 board
Preparation:

- MODE switch/HDCR-50 → CAM
- KNEE switch/HDCR-50 → PRESET
- GAIN switch/HDCR-50 → 0dB
- S114 (SYSTEM PRESET ON/OFF)/IF-346 board → OFF

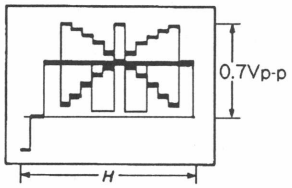
Adjustment Procedure

1. Shoot the grayscale chart as shown below.

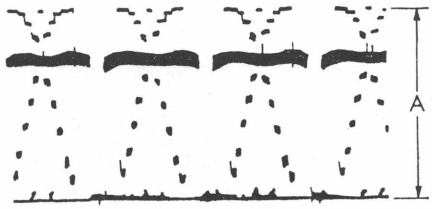
Monitor screen

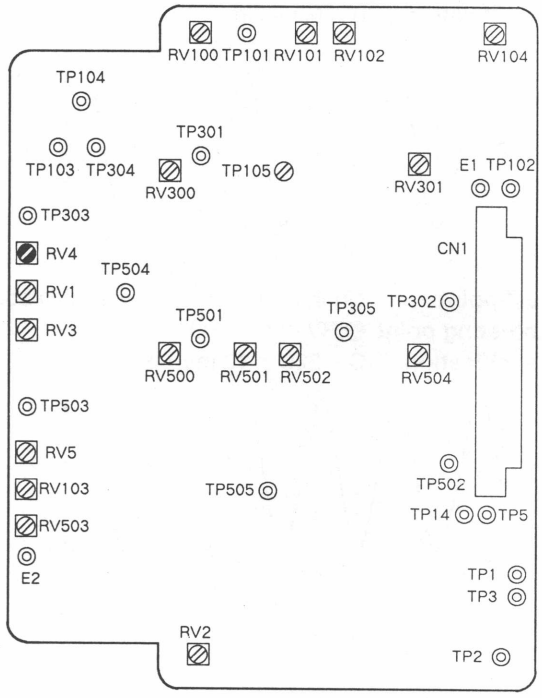


Waveform monitor



2. Adjust the lens iris so that the VIDEO OUT Level is 0.7 V.
3. KNEE switch/HDCR-50 → AUTO
   Open the lens iris by one step.
4. **Test point:** TP202/VDA-18 board
   Adjusting point: RV4/PR-155 board
   Specification: A = 750 ± 10 mV





PR-155 BOARD (COMPONENT SIDE)

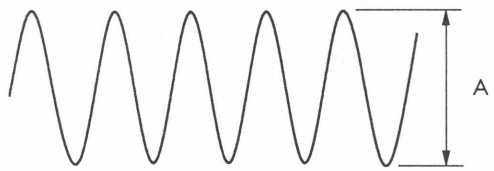
4-2-35. INCOM Adjustment

Equipment: Oscilloscope
To be extended: SG-190 board
Preparation:

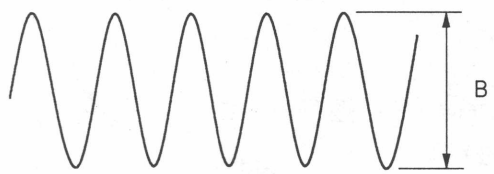
- Lens iris → Close
- ⊘ RV1 [AUDIO MIX] /MA-48 board → mechanical center
- ⊘ RV12 (SIDE TONE)/SG-190 board → Fully counterclockwise ◯
- ⊘ RV13 (RECEIVE LEVEL)/SG-190 board → fULLY COUNTERCLOCKWISE ◯
- INCOM MIC switch/HDCA rear panel → ON
- S11 (MIC SELECT1)/SG-190 board → CARBON

Adjustment Procedure

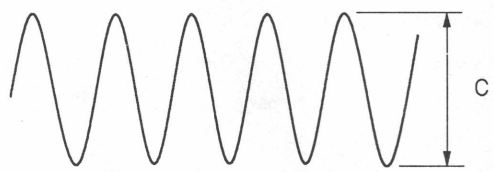
1. Feed the 1kHz (2.2 ± 0.1 Vp-p) sine wave to the INCOM connector of HDCA-50.
2. **Test point:** Drain of Q22(GND: E2)/SG-190 board
   Adjusting point: ⊘ RV11/SG-190 board
   Specification: A = 2.0 ± 0.1 Vp-p



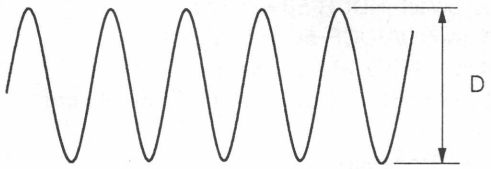
3. **Test point:** pin 46(GND: pin 38)/extension board
   Adjusting point: ⊘ RV14/SG-190 board
   Specification: B = Minimum

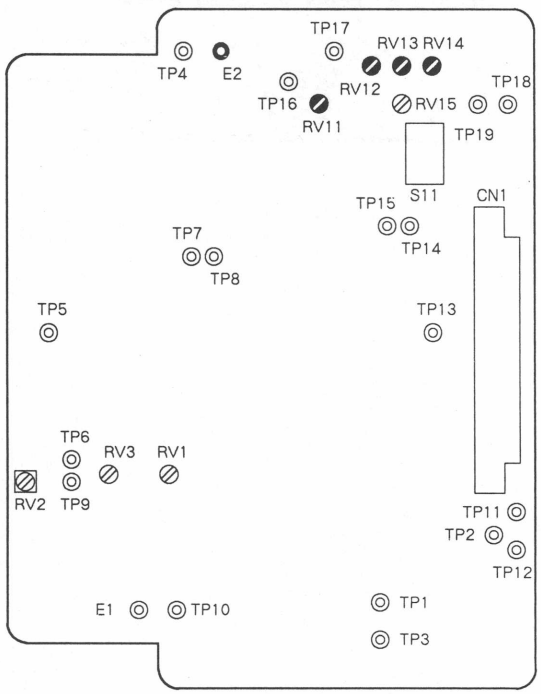


4. **Test point:** pin 46(GND: pin 38)/extension board
   Adjusting point: ⊘ RV13/SG-190 board
   Specification: C = 220 ± 10 mVp-p



5. **Test point:** pin 46(GND: pin 38)/extension board
   Adjusting point: ⊘ RV12/SG-190 board
   Specification: D = 50 ± 5 mVp-p





SG-190 BOARD (COMPONENT SIDE)

HDCA-50
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